

Do We Need More Immigration?

The shortage of labor in some industries is producing a demand for changing our immigration laws in order to bring in a large influx of foreign laborers. The question is one which will be eagerly discussed pro and con in the next session of Congress.

The Manufacturers Record does not believe that there should be any change for the present in our immigration laws, unless to make them more restrictive by requiring that all emigrants from Europe or other countries seeking to enter America should be thoroughly investigated, physically and morally, and as to whether they are anarchists or Bolshevists or not, by responsible agents of the United States Government before the emigrants are allowd to take ship for America.

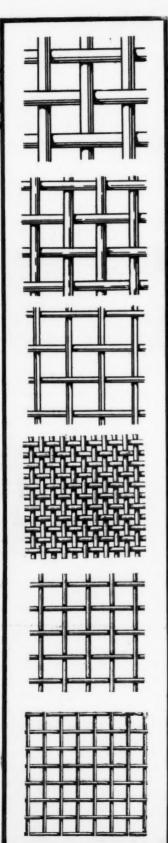
Our nation has been flooded for many years with millions of undesirable aliens, who are aliens in thought, in morals, in language and in their concept of government. Millions of these people have not been assimilated and are today a serious menace to the welfare of this country, and will so continue until they have been assimilated and Americanized. These people are responsible to a large extent for the breaking of our laws and for crimes of all kinds.

On the other hand, there are a great many of these immigrants who are good citizens, whose coming has been of benefit to them and of benefit to the country. But we cannot afford to swamp the country, even for the sake of increasing the supply of labor, with the hordes of people now eager to leave Russia and Southeastern Europe for America.

Moreover, there is another phase of this situation worthy of the most careful study. Thirty years ago Gen. Francis A. Walker, twice Superintendent of the Census, and one of the ablest statisticians and political economists which this country has ever produced, in an elaborate discussion of the immigration question, took the ground that from the time when the great rush of foreigners commenced to invade this country, after 1830 and 1840, there was a decrease in the birth rate of native Americans in just about the proportion of the increase in the arrival of foreigners, due to the influence which they were having upon Amrican life.

In other words, General Walker argued strongly that if there had been no important immigration after 1830 or 1840 the birth rate among the native white stock which had continued from early days would have given us just as large a population as we had with the lessening of the birth rate of Americans and the increase of immigration. His arguments, backed by elaborate statistical calculations, were to the effect that the incoming of foreigners had caused this decrease in the birth rate in native American families, and that this change had been to the decided disadvantage of the country.

General Walker's discussion of the subject is of more interest today even than it was at the time when he wrote on that question. In view, therefore, of the wide discussion which the immigration question is bound to command we will publish in next week's issue his extremely interesting article, written nearly a third of a century ago, and we commend it to the study of every American.





Clinton Wire Cloth was known to this country. As far back as 1856, the first power loom was operated.

These years of service and experience enable us to give you a product of excellent quality.

Where wire cloth can be used, Wickwire Spencer Cloth (Clinton Brand) will serve you well.

WICKWIRE SPENCER STEEL CORPORATION

Liggett Building, 42nd Street and Madison Avenue NEW YORK CITY

Worcester

Buffalo

Detroit

Chicago

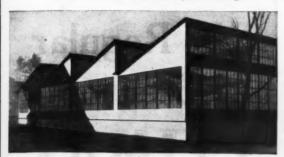
San Francisco

22.

TRUSCON STANDARD (RUSCON BUILDINGS

Effect Four Definite Savings

- 1-Cost less than other permanent buildings.
- 2-Quick erection insures earlier occupancy.
- 3—Small investment reduces carrying charges.
- 4-100% salvage when re-erected elsewhere.



From the smallest shop to the complete plant. Prominent users include: American Can Co., Baldwin Locomotive Co., Bayer Chemical Co., Postum Cereal Co., U. S. Aluminum Co.



Oil Buildings
Used for fireproof oil storage, filling stations, compressor houses, bulk stations, etc., by such companies as Atlantic Refining Co., Galena Signal Oil Co., Standard Oil Co.



Warehouses

Of size and arrangement to fit exactly all needs.

Used by hundreds of leading companies, including Packard Motor Car Co., Swift & Company, Warner & Swasey Company.



Railroad Buildings

press sheds, tool storage, bunk houses, waiting rooms, etc., by many railroads, including: Chicago and Northwestern R. R., New York Central R. R., Pennsylvania R. R.



Foundries Well ventilated, fireproof and permanent. Users include: Allyne-Ryan Foundry Co., American Car and Foundry Co., Camden Forge Company, Dayton Malleable Iron Company.

Tell Us Your Problem

and we will quote you a price on a building erected, sure to meet your needs exactly—

Remember, the purchase price of these buildings consists only of our factory cost plus one overhead plus one profit. Write today.

TRUSCON STEEL CO.

YOUNGSTOWN

OHIO

Warehouses and Sales Offices in Principal Cities

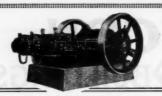
To Write to True Onio building

ON

nue

isco





What if your coal-fired steam plant is caught by enforced idleness? How much will a shut-down cost you? Bessemer users will not worry. Even when coal prices are normal they are saving an average of half the costs that other plants are paying for steam.

Bessemer Oil Engines operate on the cheapest of fuels, and meet the most exacting power requirements—24,000 installations are in use today.

Avoid a shut-down this fall or winter-investigate now. Write

THE BESSEMER GAS ENGINE COMPANY 61 York St. Grove City, Pa.

SEMER

OIL ENGINES

15 to 180 H. P.



Manufacturers of

Dry Pans, (3 sizes).
Wet Pans, (3 sizes).
Sewer Pipe Presses, (4 sizes).
Gravity Elevators.
Sewer Pipe Dies.
Feeders.
Conveyors.
Potters Machinery.
Oat Cutters and Hullers.

Send for Catalogue No. 31

Rubber Core and Mold Work.

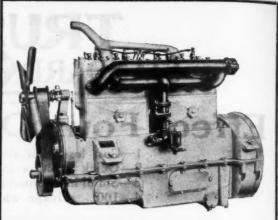
TAPLIN-RICE-CLERKIN CO., AKRON, O.

TRANSMISSION MACHINERY

THE Caldwell line is complete. Bearings—heavy, properly designed, and well finished. Pulleys of ample weight and accurately turned. The entire line has achieved outstanding recognition under hard service. Let us figure on your requirements.

H. W. CALDWELL & SON CO. LINK-BELT COMPANY, OWNER Dallas, Texas, 709 Main St.—Chicago, 17th St. and Western Ave.—New York, Woolworth Bidg.





No Regular User of

CLIMAX

"The Trustworthy Engine"

Has Ever
Changed
To
Any Other
Make

Moderate Speed—Heavy Duty 25 to 80 H. P.—Kerosene or Gasoline.

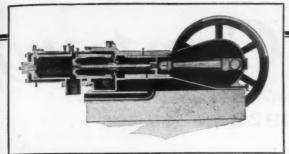
Write for Catalog

CLIMAX ENGINEERING CO.

19 West 18th Ave. Clinton, Iowa

Manufacturers of Internal Combustion Engines for Automotive and Industrial Power Purposes.

922.



Helpful, interesting literature regarding the economy, permanence and dependability of the Primm may be had on application to The Power Manufacturing Comoany, Cheney Avenue, Marion, Ohio. Let us get your name on our mailing list

A Cross-Section All Power Users Should Study

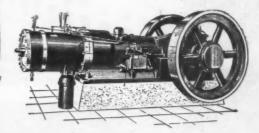
This cross-section of a *Primm Oil Engine* shows clearly the "balance" that characterizes the semi-Diesel horizontal type of engine, with crosshead construction, insuring ease and economy of operation.

It will pay you to investigate the claims of the *Primm*, backed as it is by 20 years' experience in making oil engines of power and purpose.

THE POWER MANUFACTURING COMPANY
105 Cheney Avenue, Marion, Ohio

PRIMM OIL ENGINES

"SERVICE BUILT IN AT THE FACTORY AND MAINTAINED IN THE FIELD"



CORLISS ENGINES



Boilers of All Styles and Sizes

Murray Iron Works Co.

BURLINGTON, IOWA

Incorporated February 1, 1870

Paul Bigelow, 39-41 Cortlandt St., New York City. W. M. Jackson, Bourse Bidg., Phila., Pa.

BEFORE WE BUY POWER LET US GET PROF. STUMPF'S NEW BOOK

THE UNA-FLOW STEAM ENGINE
Price \$5
Postage Paid

STUMPF UNA-FLOW ENGINE CO., INC. 401 S. A. BK. Bidg. Syracuse, N. Y.

BUCKEYE OIL ENGINES

Factory, Mill, Mine and Municipal Power Plants.



THE BUCKEYE MACHINE CO.

CHUSE END. MFG.GO.

SINGLE VALVE, POPPET VALVE UNIFLOW, AND NON-RE-LEASING CORLISS ENGINES FOR YOUR POWER PLANT.

Built in sizes 100 to 1600 H.P. for rope drives, belting, or direct connection to saw mills, blowers, mine fans, generating units, air and ammonia compressors.

Southern Offices:
B. R. Hoshall—714 Union & Planters Bank Bldg.,
Memphis, Tenn.
Geo. B. Weaver—719 Brown-Marx Bldg.,
Birmingham, Ala.

Chuse Engine & Mfg. Co., Mattoon, Ill.

ENGINES BOILERS TANKS TOWERS SMOKE STACKS

If you are in the market for the above, get our prices. We are Southern Manufacturers, and not only manufacture, but guarantee our products. We want you to take advantage of our 50 years' experience.

Write us for further information and become a satisfied customer.

SCHOFIELD'S IRON WORKS
Dept. H MACON, GA.

hi8

tul a

an



1922

NATIONAL WORKS.

at McKeesport, Pennsylvania, one of the eleven plants of National Tube Company, recently observed its fiftieth birthday. This works had its inception in East Boston, Mass., in 1868, so that the history of "NATIONAL" Pipe now spans 54 years of active Pipe Progress.

TUBE WORKS MARKS 50 YEARS' EXISTENCE

Officials and Men Observe Anniversary of McKeesport Company.

VETERANS STILL ON JOB

Officials and veteran employes of the National Tube Company of Mc Keeport yesterday observed the fit Plant Observes Fiftieth Anniversary On Spet, 13, 1872, the first pipe was turned out at the McKersport, The, just of the National Tube Co. and text Neckmody, the fiftieth agricuracy of that Annies the latter were two who were conjugated at the plant at its opening and who still are in active harriero, Daniel Turkya and Patrick Bigs.

The first product of the plant was 2-in, moirer uses New the range of products includes all kinds of tube lar goods, of aines running from 14: in, to 30 is, in diameter. The original plant accupied only four acre and consisted of one small building. There are no concess of buildings, one of white is the largest mild under one roof in the world, while the plant as a whole is the larger.

National Tube Co. Fifty Years at McKeesport

Largest Pipe Mill in the World Has Had Interesting History Marked by Progressive Management and Successful Operation

National Tube Co., Pittsburgh; manufacturer of Pitte universally known "National" pipe, celebrated on ex-September 13 the fiftiest anniversary of the opening points big McKeesport plant. Executives of the company, veteran employes and citizens of the city of Mc-Keesport made the day a

aroud boast of the community that fifty years ago the largest pipe mill in the world was located there, and that today it can still make the same claim.

It must be remembered that the history of the company artedates its connection with McKeesport, for in 1869 John H. September 21, 1922

National Tube Observes Fiftieth Anniversary

The fiftieth anniversary of the making of pipe by the National Tube Co., McKeesport, Pa., was celebrated Sept. 13 by officials of the company and its veteran employes. Men who fielped to make the first pipe are livery and several of these.

1922.

of Pipe Progress

AFTER FIFTY YEARS existence—whether it is a man's personal life, a great political movement, a notable industry or invention, this seems a natural point at which to stand and look back over the accomplishments and failures of the half century, and to balance the realization of today against the struggles of the passing years.

From a modest beginning in 1872, with a small plant and a few acres of ground, the history of National Works of National Tube Company has been one of continual progress, until today it stands unrivaled in its position of leadership among plants manufacturing tubular goods. Keeping abreast of the times, keeping faith with the consumer, and with a desire to serve in an ever-increasing measure, is the keystone upon which the progress and growth of the plant has been made.

This anniversary has attracted editorial attention throughout the country, and as typical of such the following is quoted from the *Journal of Commerce*, Philadelphia, September, 30, 1922.

"When one glances back over the pages of manufacturing and commercial pursuit during the past half century he will find much to interest him in the origin and inception of the leading concerns of the present day, for the onward and upward career of these enterprises in the majority of instances is merely the substantial fruit of success which usually comes to reward intelligent and energetic effort, no matter in what direction or in what capacity it may be applied.

Tracing the history of prominent and old established Pennsylvania enterprises it will be found that there is probably none which enjoys a wider prestige and reputation in its special line of activity than the National Works of National Tube Company located at McKeesport, Pa., which a few days ago had the pleasure and satisfaction of celebrating the 50th anniversary of its founding. It is one of the oldest concerns of the country and has developed to its present large proportions from a small beginning, but its growth and expansion have been consistent and gainful. The real secret of the continued success of the

firm will be found in the fact that its management has always proven it is fully in touch with the progress and trend of the times, studiously striving to place upon the market a line of products that would sell themselves through the efforts of their own merits and qualities.

The people of McKeesport are naturally proud of the past record, present stability and future promise of the city's representative commercial and manufacturing enterprises; proud of that integrity of business dealing and consistency of energy of purpose which successfully meet the commercial rivalry and competition, because of known quality of product and reliability of service; proud of that up-to-date spirit of effort and endeavor which makes the success of the past the foundation upon which to build and plan for still greater achievements in the future, and in all of these essentials the National Tube Company is typical of that commercial energy and enterprise which won for the United States a position of leadership among the nations of the world."



The Pipe that for more than fifty years has been

The Recognized Standard

of Wrought Pipe Quality

NATIONAL TUBE COMPANY, PITTSBURGH, PA.

General Sales Offices: Frick Building

Adapta Color Dever Detroit Rew Crients New York Sait Lake City Philadelphia Pittebergh St. Louis St. Pan



Bulletins

B-1

and R-4



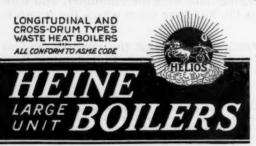
H. R. T. BOILER WITH STEEL CASING

BROWNELL

There is a very good reason why The Brownell Company has been able to design and build boilers for over 67 years. The care which is taken in the actual construction, such as fitting braces, driving rivets, and other apparently minor details makes the Brownell Boilers individual and strengthens the Brownell reputation. The Steel Casing with a special setting as illustrated gives exceptional economy.

THE BROWNELL COMPANY Dayton, Ohio, U. S. A. Established 1855

BOILERS



Heine Roiler Company

SAINT LOUIS USA

BOILER MANUFACTURERS FOR 40 YEARS

BOILER TUBES

FOR ALL TYPES OF BOILERS

Especially bent tubes for vertical water-tube boilers

Also carry a large stock of straight tubes. Write, phone or wire for quotations.

BOILER TUBE CO. OF AMERICA

Main Office:

1228 Park Bldg., PITTSBURGH, PA.

NEW YORK OFFICE:

CHICAGO OFFICE:

1816 Woolworth Bldg.

809 Peoples Gas Bidg.

CHARLESTON DRY DOCK & MACHINE CO.

Successors to VALK & MURDOCH CO

MARINE AND STATIONARY BOILERS Repairs to Steel and Wooden Vessels

8,000-ton Dry Dock - 1,500 and 600-ton Marine Railways

CHARLESTON, S. C.

HARTLEY BOILER WORKS

BUILDERS OF BOILERS

Stand Pipe, Self-supporting Stacks, Tanks, Towers, all kinds of Structural and Plate Iron Work, Boiler Fronts, Grate Bars, all kinds of Castings.

MONTGOMERY

ALABAMA



RADIAL BRICK CHIMNEYS

CUSTODIS CHIMNEY

Also EXPERTS in Repairing Brick and Concrete Chimneys
Heightening Chimneys
Lightning Rods Installed and Repaired
Work done while chimney is in operation, if necessary
New York Atlanta Richmond Builtimere

RUST CHIMNEYS

RADIAL BRICK AND REINFORCED CONCRETE REFRACTORY BRICKWORK

THE RUST ENGINEERING CO. ENGINEERS AND CONTRACTORS

Pittsburgh

Washington

Birmingham

THE BABCOCK & WILCOX COMPANY

85 LIBERTY STREET, NEW YORK

Builders since 1868 of Water Tube Boilers of continuing reliability

BRANCH OFFICES

BOSTON, 49 Federal Street
PHILADELPHIA. North American Building
PHTTSBURGH, Farmers Deposit Bank Building
CLEVELAND, Guardian Building
CHICAGO, Marquette Building
CINCINNATI. Traction Building
ATLANTA, Candler Building
TUCSON, ARIZ., 21 So. Stone Avenue
FORT WORTH, TEX., Flatiron Building
HONOLULU, H. T., Castle & Cooke Building



WORKS

Bayonne, N. J. Barberton, Ohio Makers of Steam Superheaters since 1898 and of Chain Grate Stokers since 1893

BRANCH OFFICES

DETROIT, Ford Building
NEW ORLEANS, 521-5 Baronne Street
HOUSTON, TEXAS, Southern Pacific Building
DENVER, 435 Seventeenth Street
SALT LAKE CITY, 705-6 Kestrus Building
SAN FRANCISCO, Sheldon Building
LOS ANGELES, 404-6 Central Building
SEATTLE, I. C. Smith Building
SEATTLE, I. C. Smith Building
HAVANA, CUBA, Calle de Aguiar 104
SAN JUAN, PORTO RICO, ROYAL Building

. 1922



DALLAS

MIIX

Adaptable To All Fuels

The Standard Oil Company of Kansas installed the Vogt Water Tube Boiler because of its proved efficiency and worth in the oil industry. Adaptability to the use of any common fuel and fuel burning equipment is one of the principal features. This particular installation consists of five Vogt Boilers equipped for oil as fuel. Another reason for its success is the unsurpassed steam and water storage space which takes care of rapid and wide fluctuations of the load. Let us tell you all about the Vogt Water Tube Boiler.

Write Today For Our New Descriptive Bulletin WT-2

HENRY VOGT MACHINE CO.

LOUISVILLE, KY.

MANUFACTURERS OF WATER TUBE AND HORIZONTAL RETURN TUBULAR BOILERS :: (CE-MAKING AND REFRIGERATING MACHINERY :: DROP FORGED STEEL VALVES AND FITTINGS :: OIL REFINERY EQUIPMENT





A highly recommended Blow-off combination

"DURO"
Fig. 897, Iron
Bronze Mounted
for 250 lbs.,
W.S.P.
Fig. 1413, Cast
Steel Monel
Mt'd., for
350 lbs., W.S.P.



"VICTOR"
Fig. 892, Iron
BronzeMounted
for 250 lbs.,
W.S.P.
Fig. 1353, Cast
Steel Monel
Mt'd., for
350 lbs., W.S.P.

LUNKENHEIMER Blow-off Valves

Remain tight in service, prevent waste through boiler blow-off lines, and thereby turn to a profit the losses caused by leakage which frequently occurs at this point.

In Lunkenheimer Blow-off Valves the water is released gradually due to the peculiar construction of the seat and disc. This virtually makes them safety devices since they eliminate the dangers incident to undue agitation within the boiler or severe shock in the discharge line which results when blow-off Valves are opened suddenly.

Lunkenheimer design and construction reduces wear to a minimum. When wear does appear, the repair of the parts affected is easily accomplished and when a part is worn beyond repair it can be renewed.

The installation of Lunkenheimer Blow-off Valves is the solution of your boiler blow-off problem. Why not get the facts first hand?

Descriptive literature on request.



Fig. 1352. Straightway or Y Pattern.

THE LUNKENHEIMER CO.

Largest Manufacturers of High Grade Engineering Specialties in the World

CINCINNATI, U.S.A.

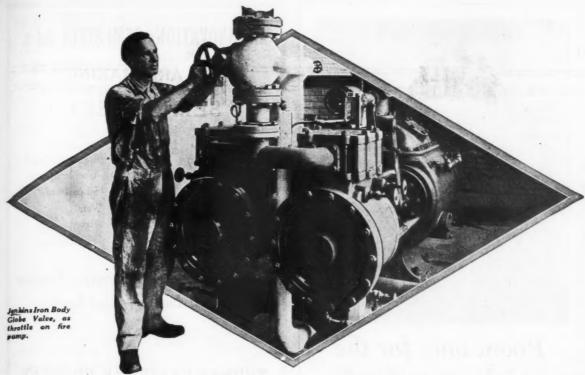
NEW YORK CHICAGO

BOSTON LONDON

EXPORT DEPT.
129-135 Lafayette St., New York

1606-24-62

"America's Best since 1862"



He specifies *Jenkins only* —because it's economy

MR. Cunningham, Chief Engineer of the Glen Knitting Mills, Philadelphia, Pa., specifies "genuine Jenkins only". He finds that the greatest valve economy lies in providing an assured valve service—and that is what Jenkins Valves do. His practice is that of many engineers who operate their plants on an efficient and economical basis.

Each Jenkins Valve is designed, made, tested, and guaranteed for the maximum service, not merely the average.

Know the genuine by the Jenkins "Diamond" and signature.

JENKINS BROS.

New York Montreal Boston Philadelphia

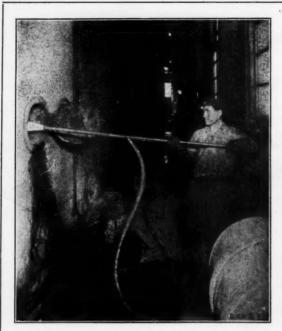
Chicago



CO.



Plates



Room only for the highest quality!

Imagine yourself in this man's shoes! Aiming and steadying an instrument shooting live steam at stiff pressure around the tubes of a boiler. The hose so hot you couldn't hold it with gloves.

Would the quality of that hose mean anything to you? Would you insist on the highest quality obtainable or accept an ordinary hose? If we read your thoughts aright, your decision is: "Only the best for me." Precisely! No risk of a scalding for you.

Goodrich Steam Hose is the safe, dependable, durable and economical hose for this job. The Goodrich reputation stands back of it and assures you its quality is the highest experience and skill has produced.

Don't take a chance—buy Goodrich Hose.

THE B. F. GOODRICH RUBBER COMPANY
Akron, Ohio

Goodrich STEAM HOSE

Best in the Long Run

AN INNOVATION-SEMI-STEEL did it.

WE ARE MAKING 50% Steel—50% Pig Iron SEMI - STEEL

Thomas W-S-D Grate Bars—fuel savers

" Elliptic " —steam producers

" Impervious " —trouble bearers

Common " —all patterns

Boiler Fronts Arches Vats

Rims Pans Retorts

They are Harder—Stronger—Tougher

-Last Longer—Cost Less.

Swell the bank account. Send us your inquiries.

THOMAS GRATE BAR COMPANY

BIRMINGHAM, ALA.

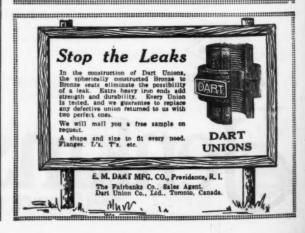


ARMSTRONG INTERLOCKING SHAKING GRATES

Fire Castings

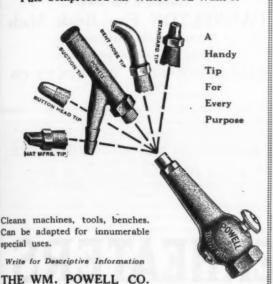
cut fuel costs from ten to forty per cent. —Prove it your plant—our expense Armstrong Mfg. Company W. Liberty Street Springfield, Ohio

CRANE VALVES



BLOW GUN AIR VALVE

Puts Compressed Air Where You Want It



JOS. M. ZAMOISKI CO.

The Electrifiers

RADIO BUILDING

BALTIMORE, MD.

Southern Distributors

Radio Outfits and Supplies

We Represent 30 Licensed Manufacturers

TERRITORY OPEN FOR LIVE DEALERS

MACHINERY AND SUPPLIES

Hercules Wire Rope Skidding Blocks Worthington Pumps Metropolitan Injectors Powell & Jenkins Valves Pipe & Fittings Transmission Machinery Shafting Ames Shovels Wheelbarrows Nagle Boilers & Engines

Catalogs on Request

THE BAILEY-LEBBY COMPANY CHARLESTON, S. C.

FOR INDUSTRIAL, RAILROAD, MUNICIPAL AND OTHER USES

FILTERED

1204 Draper Street

CINCINNATI, OHIO

WATER

SOFTENED

Softeners or Filters of any type or capacity as separate or combination Systems.

AMERICAN WATER SOFTENER COMPANY 5. E. Cor. 4th & Lehigh Ave. Philadelphia **BOILERS - FLUES - REPAIRS** CONTRACTORS AND MILL CASTING

Capacity Boring Mill up to 20 ft. Lathes up to 62 in. x 25 ft. 100 Large and Small Machines and Men for New and Re-pair Work.

LOMBARD IRON WORKS & SUPPLY CO. AUGUSTA, GA.

A. K. ROBINS & COMPANY

CANNING MACHINERY AND SUPPLIES For Fruits, Vegetables, Sea Food, Etc.

To prove that the Diagraph Stencil-Cutting Machine swill avoid delay and much of the loss and damage resulting from improper marking of shipments we will gad it seems one to you on trial—we pay the fraigh—but it if you like the control of the con

J. R. REGNAS & CO. Diagraph Steneil Machine Branch
12 TIFT STREET - ATLANTA. GA

GRAVITY FILTERS PRESSURE WATER SOFTENING PLANTS and HYPOCHLORITE APPARATUS ALL VARIETIES OF CHEMICAL FEEDING DEVICES

Vrite for Bulletin 22

THE NEW YORK CONTINENTAL JEWELL FILTRATION CO.

NUTLEY, N. J.

Member Associated Manufacturers of Water Purifying Equipment

SOFTENING & FILTRATION FOR BOILER FEED AND ALL INDUSTRIAL USES

ROBERTS FILTERS

Ideally adapted for installation in textile mills; raw water ice plants; laundries, and for all industrial or municipal require-

"Write for Descriptive Literature."

Roberts Filter Manufacturing Co. DARBY (PHILA.) PENNA. NEW YORK OFFICE-FLATIRON BUILDING.

WM.B.SCAIFE & SONS CO.PITTSBURGH.PA

, 1922

it.

her

KING npany

"HYTEST" FIRE BRICK

SEWER PIPE

FLUE LINING

STEVENS BROS. & CO.

STEVENS POTTERY, GA.



ATLANTA

FOR BOILER SETTINGS - BAFFLES BETTER THAN FIRE-BRICK

JOINTLESS FIRE BRICK Cº

Fire Brick Fire Clay

"SERVICE CROWN" "AAA" "B B B"

These are the only

CANNELTON Fire Brick Made

We are exclusive manufacturers

Write for sample and prices

CANNELTON CLAY PRODUCTS CO.

Office and Factory: CANNELTON, INDIANA

THE CAMBRIA CLAY PRODUCTS CO.

MANUFACTURERS

SEWER PIPE - FLUE LINING - WALL COPING FACE BRICK - FIRE BRICK - FIRE CLAY HOLLOW BUILDING TILE

Office and Works - BLACKFORK, OHIO

H. S. TEAL

ANNISTON REFRACTORIES CO.

MANUFACTURERS OF

SILICA AND HIGH GRADE FIRE BRICK PREPARED FIRE CLAY A SPECIALTY OXFORD, ALA.

WHEN BETTER ORICK ARE MADE "TEAL" WILL MAKE THEM

FOSTER SUPERHEA

A necessity for turbine protection, engine cylinder economy and utilization of superheat for all its benefits. POWER SPECIALTY COMPANY Chicago, San Francisco, Dallas, London, Eng! 111 Broadway, NEW YORK

SH AND SHAPES

WALSH FIRE CLAY PRODUCTS CO. CHICAGO ST. LOUIS, MO.

NEW YORK

BETSON'S PLASTIC FIRE BRICK for permanent one-piece boiler furnace linings and bailles. No bricks

to fall out. Ready (in yellow top barrels) for any one to do the job, from warehouses in principal cities. Saves waiting for repairs

THERE IS ONLY ONE "PLASTIC FIRE BRICK"

SEND FOR CATALOGUE
BETSON PLASTIC FIRE BRICK CO. INC. ROME N.Y

"Mount Savage" Fire Brick

UNION MINING COMPANY

Gen'l Offices Baltimore, Md.

THE OHIO REFRACTORIES CO. IRONTON, OHIO

HIGH GRADE FIRE BRICK

GROUND







FIRE BRICK FIRE CLAY

CANNELTON SEWER PIPE CO. CANNELTON - INDIANA - U.S.A. VN"

ide

0.

November 2, 1922.



Minimum space for installation.

Less operating attention.

Stuffing Box Leakage minimized.

Positive force feed lubrication.

YORK Enclosed Single-Acting Refrigerating Machines are ideal for plants where large capacity is required and only a limited amount of space available. They are compact in design and construction—a feature which lowers the cost of foundation and buildings.

These machines require but little attention and frequent adjustments are unnecessary. The forced feed system of lubrication reduces the duties of the operator to a minimum.

The specially designed Stuffing Box, which is subject to low pressure only, and is always oil sealed, practically eliminates the loss of ammonia through stuffing box leakage.

Lubrication is provided by a Positive Force Feed system. The oil is flooded on the bearings in a continuous stream—the lower part of the crank case serving as a reservoir.

Owners and operators, everywhere, are testifying to the simplicity and efficiency, the low operating costs and splendid performance of their York Enclosed Single-Acting Machines.

Investigate the performance of this machine. The location of the plants in your vicinity where this type of compressor is in operation will be gladly furnished upon request. Write for detailed information and prices.

YORK MANUFACTURING COMPANY Ice Making and Refrigerating Machinery Exclusively YORK, PENNA.

BANARS (SUR) REFRIGERATION

NOT to investigate the money saving possibilities of the Baker Ice Machine is an absolute disregard of those progressive principles which increase both business and profits.

Address your inquiry to Department Three.

BAKER ICE MACHINE CO. Inc. Omaha, Nebraska

THE VILTER MANUFACTURING CO.



8132 Clinton St.
MILWAUKEE, WIS.
Ice and Refrigerating
Machinery
CORLISS ENGINES

SOUTHERN ICE MACHINE COMPANY

Manufacturers of

Ice Making and Refrigerating Machinery

Charlotte,

North Carolina



AN

ICE PLANT???

The Arctic Stationary Can Raw Water System is the one you should buy because in actual daily use it will reduce your running and overhead expenses.

WHY?

Decreased Labor—
Simpler to Operate—
Cleanest Plant in the World—
Minimum Cost for Power—
Most Efficient Air Agitation—
All Core Water Absolutely Removed—
Blocks of Uniform Size.

THE ULTIMATE PLANT

WRITE US FOR DETAILS

The Arctic Ice Machine Co.

Canton, Ohio

HUBBELL



The Hubbell Globe—your assurance of reliability. Look for it when buying brass shell sockets.





Sockets that will "Stand the Gaff"

Made of the best materials and accurately assembled, Hubbell Sockets are built to last. They embody these features: standard interchangeable caps and shells, extra heavy phosphor bronze contact springs, and threaded base for shade holder or reflector. They are made for 250 Watts—250 Volts, and 660 Watts—250 Volts. Look for the Hubbell Globe!

Pull Sockets



3618 is all that a pull socket should be—the result of 25 years steady improvement. It has the standard "QUICK CATCH" shell which fits over 30 shell caps and bases; detachable acorn, and a large ball in chain which prevents "throwback". Made for 250 Watts—250 Volts, and 660 Watts—250 Volts.

3618

HARVEY HUBBELL

ELECTRICAL BRIDGEPORT

SPECIALTIES CONN. U.S.A.

ELECTRICAL SPECIALTIES





Rebuilding
Our
Specialty

Equipment does not go entirely to pieces when it wears out. Much of it shows no strain at all.

Careful investigation, replacement and complete overhauling will save you many dollars.

Thirty-two years experience rebuilding and repairing electrical equipment places us in a position to know the repairs needed to make old equipment like new.

Consult us.

Chattanooga ARMATURE WORKS.
Chattanooga, Tenn.

General Southern Representatives
The Van Dern Electric Tool Company
Drills and Grinders
Gears and Pinions

922.

U. S. Oak Tanned Leather Belting

Having our own belt shop, we can guarantee our product and our deliveries.

Hippo Waterproof Leather Belting

Unexcelled for use in damp and steamy places.

BELTING CEMENT and DRESSING OLD LEATHER BELTING RENOVATED and MADE OVER

MILL SUPPLIES, TOOLS and MACHINERY

Large and Complete Stocks

REED & DUECKER, Memphis, Tenn.

PURE OAK TANNED

FOR

ACID WATER

LEATHER BELTING

STEAM PROOF

THE DRUID OAK BELTING COMPANY (INC.)

BALTIMORE, MD.

BALTIMORE BELTING CO.

Manufacturers of

OAK TANNED LEATHER BELTING, LACED LEATHER AND SUPPLIES

BALTIMORE, MD.

Samson Braided Cord



is adapted to many special purposes in connection with manufactured products wherever a smooth, round, firm cord is required. It is far more durable in running over pulleys and for many other uses than twisted cord, chain, wire or leather.

Samson Cord

is used extensively in connection with the manufacture of automobile accessories, bags, books, drums, electrical supplies, garters, horse equipment, safety devices, shoes, suspenders and a great many others. About the factory itself, it is used with drives, dampers, elevators, fire doors, hoists, windows, ventilators, etc.

It is made in all colors, from 1/32-in. to 1½-in. diameter in hard and soft braid, glazed, unglazed or waterproofed finish, with or without wire center. Special cord for special uses.

Samples and further information gladly sent on request.

Samson Cordage Works
Boston 9, Mass.





ELECTRICAL SUPPLIES

WHOLESALE

DOUBLEDAY-HILL ELECTRIC CO.

Southern Warehouse

Washington, D. C.
Quality Considered



CROCKER-WHEELER CO., Ampere, N.J.

For Efficiency Always

CHESAPEAKE STITCHED BELTING

Manufactured from 32-os. duck and designed to give the best results in actual service. Made for all conditions of power transmission—inside or outside —wet or dry. Chesapeake Belting has been giving satisfactory service for over 30 years.

Write for printed matter.

CHESAPEAKE BELTING CO. BALTIMORE, MD.





CRESSON-MORRIS POWER TRANSMITTING MACHINERY

"OILING THE SQUEAKS"

Old is the story of the plant engineer who, when asked as to his maintenance methods, proudly proclaimed he always "Oiled the Squeaks".

Yet today in more than one plant power transmitting systems get no more attention. In the best of them real maintenance is a burden both costly and time taking.

Cresson-Morris Machinery is available for meeting almost every power transmitting requirement. Cresson-Morris Engineers—backed up by our 60 years experience—are always at your service.

Cresson-Morris Power Transmitting Machinery is the result of sixty years experience in the elimination of "Squeaks" and, as well, in minimizing of maintenance.

CRESSON - MORRIS CO.
Engineers Founders Machinists
18th St. and Allegheny Ave., Philadelphia, Pa.
Branch Office: 141 Milk Street, Boston, Mass.

Cresson-Morris Plant, Philadelphia, Pa.

22.



Write Today for Booklet

MORSE CHAIN CO.

Morse Engineering Service

LARGEST MANUFACTURERS OF SILENT CHAINS IN THE WORLD

Benefit by Morse Service as others do.

Address Nearest Office

ITHACA, N. Y.

Assistance Without Obligation



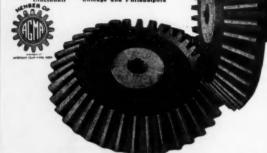
"MORSE" is the Guarantee Always Behind the Efficiency, Durability and Service.

Gearing

Spur. Bevel, Mitre, Internal, Worm, Mortise-all styles. Wood Cogs.

Medart Gears are made in every type—of any material—either pat-tern-molded, machine-molded or cut. Gears cut up to 72 inches diameter. Medart patterns are unusually complete prices attractive—service prompt. Send for Our New Catalog No. 43, or submit your specifications for our en-gineers' estimate.

THE MEDART COMPANY
(Formerly Medart Patent Pulley Co.)
General Offices and Works: St. Louis, U. S. A.
Office and Wardhouse: Offices and Wardhouse: Offices and Wardhouse



*MEDART - means EVERYTHING in LINE SHAFTING EQUIPMENT -

Goldens' Foundry & Machine Co. COLUMBUS, GEORGIA

MANUFACTURERS OF

MACHINE MOULDED PULLEYS HANGERS SHAFTING

Couplings, Pillow Blocks, Floor Stands, Collars, Etc.

Send for Price List and Discount Sheet

Variable Speed Transmission

will give you any speed you want in a moment without stopping your machine.

It will increase your output, save labor, improve workmanship.

Can be profitably used on any machine requiring speed changes.

Ask for Catalog T-21

REEVES PULLEY CO.

Columbus, Ind.

HANGERS Line



U

E

S

IN THE FINAL ANALYSIS—CAST IRON PULLEYS will correct the pulley troubles you have been having, but the use of CAST IRON

pulleys of proper design in the initial installation would have PREVENTED the trouble.

G

T. B. WOOD'S SONS CO. Chambersburg, Pa.

POWER TRANSMITTING MACHINER)

FRICTION CLUTCHES



WELLER EXPANSION FRICTION CLUTCHES

SIMPLEST, MOST POWERFUL CLUTCH MADE ONE POINT OF ADJUSTMENT-NO ATTENTION REQUIRED HAS VERY FEW PARTS-NO OIL REQUIRED

IT MAKES NO DIFFERENCE WHETHER THIS CLUTCH IS IN A DRY, WET, CLEAN OR DIRTY PLACE, IT CAN BE COVERED WITH DUST AND DIRT AS IN A CEMENT OR STONE CRUSHING PLANT OR WATER CAN BE DRIPPING ON IT AND IT WILL DO THE WORK JUST THE SAME.

WE ALSO MAKE A COMPLETE LINE CONVEYING AND POWER TRANSMITTING MACHINERY.

WRITE FOR PRICES

WELLER MFG. CO. CHICAGO, ILL. 1820-1856 N. Kostner Ave.

SALES OFFICES

NEW YORK BOSTON BALTIMORE CLEVELAND PITTSBURGH SALT LAKE CITY SAN FRANCISCO

22

ANNOUNCING

"BOX"



A NEW SMALLER
AND BETTER
ELECTRIC
HOIST



The "LOAD LIFTER" is built for the man who must lift loads of 1000 LBS. or 500 LBS. or less, and needs to do it in the most economical manner.

It's COST IS SURPRIS-INGLY LOW—The operating expense negligible.



Built For Everyone Who Has A Load To Lift or Move

A powerful electric hoist that may be easily and quickly hung up any place, indoors or outside; or installed on an I-Beam track hung from the ceiling. This small "LOAD LIFTER" will let you lift up and move more loads of any kind, so much faster, and with less help, that you cannot now afford to use even the most efficient "man power" devices.

Send right now for complete information on this unique "LOAD LIFTER" and let us tell you what it could do for you in your business.

ALFRED BOX & COMPANY, INC. PHILA.PA.

LOAD LIFTER DEPT. 818 N. FRONT ST.

Manufacturers of
Electric Traveling Cranes—Hand Power Traveling Cranes—Jib Cranes
Electric Hoists—Chain Hoists—I-Beam Trolleys
Monorail Cranes—Overhead Track Systems

ENDURANCE

UNEQUALLED PRACTICALLY PROVEN



OF OPERATION POSSIBLE

CENTRAL STATION CATERING

A FIRM OFFER

Petroleum Products refined from the best of crude.

Sold on specification and guaranteed.

Service which means complete satisfaction.



ROBINSON OILS

"they lubricate more and outlast other oils"

WM. C. ROBINSON & SON CO.

Main Office: BALTIMORE, MD.

Refinery: CORAOPOLIS, PA.

BRANCHES IN 20 CITIES

There is MORE POWER in
THAT GOOD GULF GASOLINE
AND SUPREME AUTO OIL

GULF REFINING CO

SAPULPA REFINING CO. TANK CAR SHIPMENTS ONLY

FUEL OIL

GASOLINE



GAS OIL

KEROSENE

LUBRICATING OILS

Sales Department

First Nat'l Bank Bldg.

Tulsa, Okla.

22:

She's Rarin' To Go!

When we shut down, just a year ago, we stuffed every bearing and grease cup chock full of



It's been standing there all through a red hot summer, but that grease is just as sweet now as the day we put it in. And now, when the Big Chief says "Let's go", all we have to do is to turn in the



A MARK known and respected around the world -Since 1868for fair dealing,
a quality product
and an
unexcelled service

Albany Grease is a pure tallow grease, and will not become rancid.

"All Men Know It-Knowing Men Use

Ask your dealer—or write us for a sample big enough to give it the "Test of Time." Your dealer stocks it because he knows it's good.

Adam Cook's Sons

708-710 Washington St. New York



Yolande Coal & Coke Company

HIGH-GRADE 72 HOUR FOUNDRY COKE WASHED and SIZED BLACKSMITH COAL

Mines and Ovens at Yolande, Ala.

General Office: Brown-Marx Building BIRMINGHAM, ALA.







DIXON'S IS SAVING COAL FOR US!

DIXON'S Pioneer Boiler Graphite

"I don't mind admitting that we make more steam per square foot of heating surface than most plants. The boss got tired buying coal to heat the stone lining of the boilers and the men never enjoyed chopping out the scale anyway. So everybody was glad when Dixon's Boiler Graphite was given a trial.
"Did not notice much improvement the first time the boilers were opened, but cach time since it has been a cinch to rattle out the scale. The inspector says that our boilers are in fine condition: the men are satisfied; and the company is buying much less coal than in the old days. "Tell your manager to write to the Dixon Company and ask for their booklet No. 80-T. It will open his eyes as to the ease of keeping boilors clean from scale."

JOSEPH DIXON CRUCIBLE COMPANY JERSEY CITY, NEW JERSEY Established 1827



E





Better

Bearing Service

Solid and Cored Bars Here's in 12" Lengths

Stocked by us in convenient sizes for immediate delivery.

Ask for list giving sizes and weights

SMITH-COURTNEY COMPANY SUPPLIES AND MACHINERY, RICHMOND, VA.

HESAPEAKE CRANES



"STEEL

GENERAL MACHINE WORK

RUGGED CRANE

STEEL STRUCTURES-

BRIDGES

Span Chesapeake Crane—1 of 4 Chesapeake at plant General Electric Co., Baltimore, Md. CHESAPEAKE IRON WORKS

BALTIMORE, MD. NEW YORK OFFICE, SINGER BUILDING

THE EVERED

LECTRI



Low Priced Quick Speed Light Weight Send For Information

READING CHAIN & BLOCK CORPORATION READING PENNA.

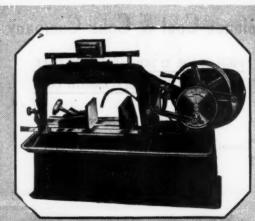




The best piling machi you can get. Ask for Catalog 92-B

New Jersey Foundry & Machine Co. 90 West Street, New York

156 Second Street, San Francisco, Cal. 126 North 10th Street, Philadelphia, Pa. BRANCH OFFICES:



RACINE" High Speed METAL CUTTING

The chips made by any "Racine" High Speed Metal Cutting Machine are all deposited at the end of the cutting stroke indicating a positive lift on the non-cutting stroke. This means cleaner and truer cutting, low saw blade consumption and a real saving in time because the blade clears itself of chips, which, of course, means quicker cutting.

Get all the facts about the "Racine" line. Write for

Use "Racine" H. S. Tungsten Power and Soft Center Hand Blades

RACINE TOOL & MACHINE CO. Catalog M. R. RACINE, WIS.

Mechanical Lift-Positive Draw Cut

Boosting Production





Photo by courtesy of our customer

BOOSTING PRODUCTION is an ideal way to reduce costs. In production from presses this may often be done by the use of feeds. The picture shows a BLISS No. 19 Inclinable Press specially equipped with a roll feed. It blanks, pierces and forms at one operation-production 55,000 to 60,000 in ten hours-material cold rolled strip stock .020 thick.

BLISS Inclinable Power Presses are rigid, convenient and adaptable. Built in a great number of sizes, they may be equipped with simple practical attachments which give them a wide range. There is a BLISS Press to meet every sheet metal working requirement.

- Bliss for Machinery -

E. W. BLISS CO.

MAIN OFFICE AND WORKS

BROOKLYN, N. Y., U. S. A.

SALES | DETROIT CLEVELAND CHICAGO PITTSBURGH ST. LOUIS BUFFALO CINCINNATI NEW HAVEN OFFICES | Dime Bank Bldg. Cleveland Discount Bldg. Peoples Gas Bldg. Oliver Bldg. Boatmen's Bank Bldg. Marine Bank Bldg. Union Trust Bldg. Second Nat'l Bank Bldg. American Factories: BROOKLYN, N.Y. HASTINGS, MICH. CLEVELAND, OHIO. SALEM, OHIO. FOREIGN SALES OFFICES AND FACTORIES:

ENGLAND, Pocock St., Blackfriars Rd., S. E., London

ITALY, 345 Via Nizza, Turin

FRANCE, 54 Blvd. Victor-Hugo, St. Ouen, Paris

Punches, Shears. For Sheet



Bending Rolls, etc., Fabricating Metals

Let Us Know Your Requirements **GREY IRON CASTINGS TO 20 TONS** BRASS CASTINGS TO 1000 LBS.

Send Blue Prints for Estimates

COVINGTON MACHINE COMPANY, Inc. COVINGTON, VA.

SMALL TOOLS

We manufacture and stock—
s—For all purposes and forms of thread.
s—As complete a line as our taps.
mers—Plain and adjustable.
mterbores—Regular and interchangeable.
stocks and sets.
Hobs—Pipe, roll threading—thread
milling.
Threading Tools and Holders.
Milling Cutters—All commercial
types and sizes.

RATT & WHITNEY CO.

PORTABLE TOOL STANDS

Time and money Savers For Shops.

Our portable Tool Stands are easily moved anywhere.

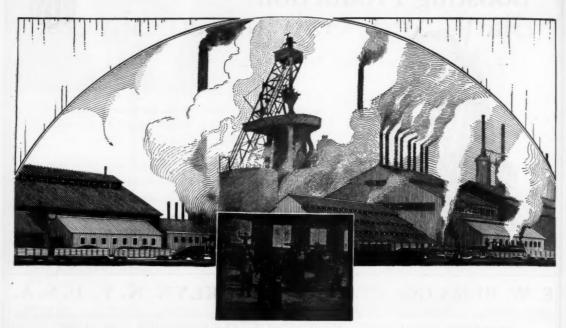
They carry any load anywhere. The modern way is to take your tools, vise and bench to your work.

> We also make Toolholder, Expanding Mandrels, Shop Furniture, Vises, etc.

WESTERN TOOL AND MANUFACTURING **COMPANY** SPRINGFIELD OHIO







WHEN you buy SHEET STEEL or TIN PLATES, the products of our great mills—

you are buying the combined excellence of good materials and craftsmanship—wrought in by the skill of conscientious and trained workmen. These products render high class service, are always reliable, and fully measure up to all claims that are made for them.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

= DISTRICT SALES OFFICES:=

Chicago Cincinnati

Denver Detroit

New Orleans

New York

Philadelph

Pittsburgh

St. Louis

Export Representatives United States Steel Products Company, New York City
Pacific Coast Representatives: United States Steel Products Company, San Francisco, Los Angeles, Portland, Seattle



Black and Galvanized Sheets, Special Sheets for all Purposes, Formed Roofing and Siding Products,

Tin and Terne Plates, Etc.



Send for new set of Weight Cards for Black and Galvanized Sheets—also our perpetual Calendar.



PITTSEGRER

An achievement of great importance to all users of sheet metal is the alloying of steel with copper to increase resistance to rust—a well established metallurgical fact, which is proved by time and weather. Many rigorous independent service tests have resulted in a host of advocates of Keystone Copper Steel.

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

-MANUFACTURERS OF-

Sheet and Tin Mill Products of every description, including Black Sheets, Galvanized Sheets, Tin and Terne Plates, Electrical Sheets, Corrugated and Formed Roofing and Siding Materials, Special Sheets for Stamping,

Wellsville Polished Steel Sheets, Automobile Body Sheets, Deep Drawing Sheets, Stove and Range Sheets, Black Plate, Etc.

4



TENNESSEE COAL, IRON & RAILROAD CO.

TIE PLATES

OPEN HEARTH-HOT WORKED

LET US HAVE YOUR INQUIRIES

General Offices: Brown-Marx Building, Birmingham, Alabama

BRANCH OFFICES:

a well established metallurgu at fact, which is

Boston Buffalo Chicago Cincinnati Cleveland

Denver Detroit New Orleans New York Philadelphia

Ditteburgh St. Louis St. Paul

Pacific Coast Representative: United States Steel Products Co., San Francisco, Sestile, Portland, Los Augeles
Export Representatives: United States Steel Products Co., New York City.







Hibernia National Bank Building, New Orleans, La. Architects, Favrot & Livaudais. Builders, George A. Fuller Company, Ne. York Metal Windo and Skylights of "Armo." Ingot Iron

Only iron that is pure should be specified for

- 1. Outside sheet-metal work
- 2. Interior sheet-metal work, such as heating and ventilating ducts
- 3. Metal lath and partitions
- 4. Window frames and rolling doors

Pure iron resists rust, while iron or steel containing impurities rusts quickly. "Armco" Ingot Iron is as near a pure iron as can be manufactured in commercial quantities. The impurities which in steel promote corrosion are almost completely eliminated. "Armco" Ingot Iron contains less than one fifth of one per cent of these impurities.

Our bulletin, "On the Necessity for Pure Iron in Certain Applications," should be in every architect's files. We shall be glad to send it to you upon request.

THE AMERICAN ROLLING MILL COMPANY Middletown, Ohio







CAMBRIA STEEL CARS

For Freight Service

AN important thing to bear in mind in placing car orders is the fact that all of the rolled, pressed and forged parts used in Cambria cars are made in Cambria Mills and shops from Cambria steel. These include solid rolled steel wheels, axles, plates, shapes and miscellaneous forgings.

Midvale Steel and Ordnance Company Cambria Steel Company

General Sales Office: Widener Bldg., Philadelphia, Pa.

District Sales Offices:

Atlanta Boston Chicago Cincinnati Cleveland Detroit
New York Philadelphia Pittsburgh San Francisco
Salt Lake City Seattle St. Louis Washington, D. C.

GALVANIZING KETTLES

COMPLETE PLANTS

ANNEALING BOXES

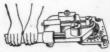
SEND US YOUR INQUIRIES

MILLARD F. WILFONG IRON WORKS COMPANY

PHILADELPHIA, U.S.A.

BAR BENDERS

Made entirely of Electric Steel
Weighs only 70 lbs.
Will bend cold any size up to
11/4" Rounds and 180° hooks
SEE NEXT WEEKS AD.
ELECTRIC WELDING CO.,



PITTSBURGH, PA.

Rego Welding & Cutting Apparatus



Kentucky Acetylene Generators
Welding Supplies
Oxygen Hydrogen Acetylene
KENTUCKY OXYGEN-HYDROGEN CO.

Logan St. & Goss Ave. Louisville, Ky.

SHARON

PRESSED STEEL COMPANY
Industrial Trucks and Trailers
PRESSED STEEL PARTS
For Railways, Motor Cars, Trucks and Tractors
Main Office SHARON, PA. and Works

ALLEGHENY STEEL COMPANY

Manufacturers of

STEEL AND CORROSION RESISTING ALLEGHENY IBON PLATES, SHEETS, BOILER TUBES AND PIPE

Ask about Allegheny Iron

Oliver Bldg., PITTSBURGH, PA. Works: BRACKENRIDGE, PA.

1922.

0.



Over Wide Spans, Under Rough Abuse -These Gates Never Buckle Nor Sag

What protection is a strong fence—unless its gates be strong?

The ordinary gate is often merely an assembled product, depending upon bolts and nuts and luck to hold it together. Comes the inevitable force of gravity on heavy members, and it sags. Comes a shock or an unusual strain, and it buckles. Come the corroding elements, with time, and it rusts away.

We sought in Anchor Post Gates to duplicate the known strength of Anchor Post Fences. We found our answer in *Electric Welding*.

Electric Welding fuses the various members together into one homogeneous section. It makes Anchor Post Gates strongest where other gates. are weakest. Hung on posts set deep in concrete, thoroughly hot-dip galvanized against rust,—they are strong, impregnable, permanent.

-Just like Anchor Post Fences!

Catalogs, information, estimates—yours for the asking.

ANCHOR POST IRON WORKS

Hudson Terminal Bldg., 52 Church St., New York Factories: Garwood, N. J. & Cleveland, Ohio

Photograph shows 40 ft. Railroad Gates and part of line of fencing around yard of Pennsylvania Railroad's new Terminal Warehouse at Chicago.

BRANCH OFFICES

BOSTON, MASS. . . 79 Milk Street CHICAGO, ILLINOIS , 8 So. Dearborn Street CINCINNATI, OHIO . . 141 East Pourth Street CLEVELAND, OHIO . Guardian Building DETROIT, MICH. . . 4th Floor, Penobecot Bide HARTFORD, CONN, , 902 Main Street MINEOLA, L. I., N. Y. 167 Jericho Turnpike PHILADELPHIA, PA. Real Estate Trust Bidg. PITTSBURGH, PA. . . Room 404 Street ROCHESTER, N. Y. . . 1804 Main Street, East

SALES AGENTS

ATLANTA, GA. . . Beaullieu & Applewhite BIRMINGHAM, ALA. . 2011 Third Avenue C. S. Caldwell DALLAS, TEXAS . . Southern Wire & Iron Co. GREENVILLE, S. C. . . Henry H. Orr KANSAS CITY, MO. . The Pierce Co. 930 Wyandoffe Street KNOXVILLE, TENN. . Chas. M. Allon Co. 407 Burwell Building LOS ANGELES, CAL. J. E. Dwan 616 South Utah Street MINNEAPOLIS, MINN. Spoore-Jevne Co.
Builders Exchange Bidg. NEW ORLEANS, LA. J. T. Mann Co., Inc., 300 Tchouplequian St. PORTLAND, OREGON The Marrill Co. RICHMOND, VA. . . . R. M. Holting

SAVANNAH, GA. . . Ches. M. MocLeen Co. Merchante Natl. Bid. Bidg. SEATTLE, WASH. . . P. T. Crowe & Co. Solt Westlate Ave. North SAN FRANCISCO, CAL. Richard Spencer 932 Hearst Building ST. LOUIS, MO. . .

ALAN WOOD IRON AND STEEL CO.

SAN FRANCISCO FORT WORTH LOS ANGELES

Philadelphia, Pa.



STEEL PLATES

Boiler Plates, Ship Plates, Tank Plates

TO THE TRADE:

Present conditions have proven manufacturers must depend on efficient ware-house distributors for at least part of their steel requirements.

Jobbers are protection to the trade, keep them running, prevent delays, avoid over-stock and market declines.

IMMEDIATE SHIPMENT

From Cisco Warehouses located, equipped and operated to render satisfactory service, will give you your steel when needed.

IRON AND STEEL PRODUCTS

Bars, Angles, Beams, Channels, Plates, Sheets, Pipe, Reinforcing Bars, Rivets, Shafting, Boiler Tubes, Tool Steel,

WRITE FOR STOCKLIST AND REFERENCE BOOK

The Cincinnati Iron & Steel Co. Cincinnati, U.S.A.

THE ALABAMA COMPANY BIRMINGHAM, ALA.

Manufacturers and Producers.

Pig Iron

"CLIFTON" and "ETOWAH" Brands. Machine cast-Free from Sand and Slag and uniform size and dependable analysis.

COKE

"BROOKWOOD" for foundry and gas purposes. Hand picked and selected.

COAL Steam and Coking Coals.
Washed and Sized Smithing Coals

We are moving our products.

Why?

The QUALITY is right and the PRICE is right.

THE BRIER HILL STEEL CO. PLATES - TANK, BOILER, FLANGING, FIRE BOX, ETC.

BLUE ANNEALED, BLACK, GALVANIZED - SHEETS

General Offices: YOUNGSTOWN, OHIO CONSOLIDATED STEEL CORPORATION, NEW YORK-Sole Export Representatives 1922

y

BETHLEHEM

Sheet and Jobbing Mills



Representing the last word in construction, equipment and facilities for the manufacture of high grade products, offer the following for prompt shipment:

Galvanized Sheets Flat and Corrugated Blue Annealed

One-Pass Cold Rolled and **Box Annealed** Blued Stove Pipe Stock

Pickled, Cold Rolled and Annealed Deoxidized Sheets

Bethlehem Coke Tin Plate and special finishes of Tin Mill Black Plate

All these Products Rolled from Open Hearth Steel

BETHLEHEM STEEL COMPANY

General Offices: BETHLEHEM, PA.

Sales Offices:

New York Boston Philadelphia Buffalo Cleveland Detroit

Baltimore Chicago Washington St. Louis Atlanta Pittsburgh San Francisco

We are manufacturers of high grade special and automatic machinery. We also manufacture special dies, tools, fixtures and gauges, also duplicate and interchangeable machine parts. Inventions developed, models made and standardized for commercial produc-

Send blueprints and specifications for estimates.

UNIVERSAL MACHINE COMPANY

Marine "VITA" Glue

Sets and stays in seams. Has tenacity and vitality · For samples and prices write to

BINNEY & SMITH COMPANY

41 East 42nd Street, at Madison Ave., New York City

DONNELLY & COMPANY

Prompt satisfactory service Send us your inquiries on

Plates, Sheets, Bars, Angles, Channels Iron and Steel Tires Special Wire Rubber Pads Special Channels Metal Lath, etc.

Supplies for Builders, Contractors, Blacksmiths and Horseshoers

and

"PITTSBURGH PERFECT" OPEN HEARTH

AND W

Pig Iron Blooms Billets Wire Rods Steel Hoops

Bright Wire Annealed Wire Galvanized Wire Varnished Wire Steel Bands

Barbed Wire Twisted Cable Wire Hard Spring Coil Wire Blued Wire Nails Cotton Ties

Standard Wire Nails Galvanized Wire Nails Coated Wire Nails

Miscellaneous Nails Poultry Netting Staples Wire Fence Staples Bale Ties Automobile and Motercycle Rim Stock

ELECTRICALLY WELDED WIRE FENCING

PROMPT SHIPMENTS Write for Catalogues and Prices. PROMPT SHIPMENTS

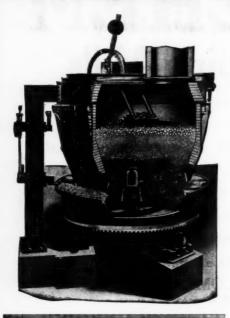


PITTSBURGH, PA.

DALLAS



The Machine of Absolute Satisfaction



Selected by every large purchaser in the steel industry since the Armistice, Four hundred ordered in the first four years.

POKERLESS PRODUCER-GAS MACHINE

Users everywhere testify with one voice to the superior satisfaction and low maintenance expense of this splendid machine. Difference in first cost comes back annually, every detail built for endurance.

Morgan Construction Company WORCESTER, MASS.

Pittsburgh Office: 610 Magee Bldg.

Telephone: Court 1381



HAVEMEYER PRODUC

A Complete line of Metal Building Products

Immediate stock shipments from our warehouse in Birmingham and from other points throughout the South. Havemeyer Bars for reinforced concrete-Bent or straight Havemeyer Supporting, Spacing and Tying Devices for holding bars in place in forms.

serts Inserts
Channels
Curb Bars
Wire Mesh
Spirals Base Bead Metal Lath Corner Bead Stair Tread Bar-Tys

Soffit Clips Security Anchor Expanded Metal Crimped Furring Bar Spacers

Catalogs on request

CONCRETE STEEL CO., 42 Broadway, New York
Southern Office: Browne-Marx Bldg.
Washington, D. C. Office: Woodward Building.
Norfolk, Va. Office: Board of Trade Building.
Philadelphia, Pittsburgh, Cleveland, Detrott, Denver, Kansas City, 8t. Louis,
Boston, Des Moines, Syracuse, 8t. Paul, Omaha, Cincinnati, Baltimore,
Hartford, Chicago.

REINFORCING BARS

All Sizes Round & Square

METAL LATHS—EXPANDED METAL NAILS, WIRE WALL PLUGS, WALL TIES. VIRGINIA STEEL SUPPLY COMPANY

Office & Warehouse 17th and Dock Sts.,

RICHMOND, VA.

REINFORCING BARS

Deformed. All Sizes. Rounds & Squares 1" to 11" New Billet Stock. Straight or Bent. Warehouse or Mill Shipments.

KNOXVILLE IRON CO.

Knoxville, Tenn.



ENFORCING BARS PATENTED

Manufacturers of our superior Pol Hex Reinforcing Bar, also Merchant Bar. Can make prompt delivery."

SOUTHERN STEEL & ROLLING MILL, INC. Birmingham, Alabama



Works at Madison, Ill., and Alton, Ill.

EINFORCING STEEL

ACLEDE STEEL CO. ST. LOUIS, MO.

BLACK AND GALVANIZED

OF EVERY DESCRIPTION

Hoops, Bands, Angles, Channels, Tees, Beams Ovals, Half Ovals, Half Rounds, Hexagons Rounds, Squares, Flats and Special Shapes

Wire of all Sizes, Shapes, Quality, Finish Wire Workers' Supplies, Wire Cloth, Wire Shapes Metal Lath and Supplies for Metal Lathers Expanded & Perforated Metals, Machine Guard Supplies

Plates-Plain and Diamond Pattern Floor and Door Sheets-Blue Annealed, Black and Galvanized, Flat and Corrugated

Nails—Wire, Coated and Cut. Hack Saw Blades Hand Punches and Shears, Rivets, Bolts Nuts, Washers, Forgings and Stampings

Shipments from Stock or Mill. Large stock of Galvanized Bars, Bands, Hoops, Shapes, Etc. No specification too large or too small for us to quote on

E HAROLD MCCALLA CO.

Pier 56 North Wharves Delaware River, Beach St. and East Columbia Ave., Philadelphia, Pa.



Concrete Specialties THE WILSON COMPANY

HAVE MEYER

"Eusley" & "Ala. City" BASIC SLA G

COMPLETE STEEL AND IRON REQUIREMENTS FOR BUILDERS AND CONTRACTORS

GREENVILLE, S. C. Branch Office 213 Latta Arcade Charlotte, N. C.

THE DOW COMPANY Louisvi le, Ky. STRUCTURAL STEEL Ornamental Iron Wire Grilles Pipe Railings Bronze Tableta

0

W

E E B A R G E



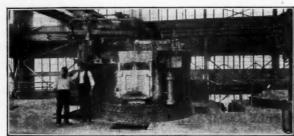
MIDLAND, PENNSYLVANIA

Steel Barges-Steel Hulls-Derrick Boats-Dump Scows and Steel Wharfboats

AMERICAN BRIDGE COMPANY

71 Broadway, New York Manufacturers of Steel Structures of all classes, particularly

BRIDGES and BUILDINGS



HEROULT ELECTRIC FURNACE

We also furnish and install

HEROULT ELECTRIC FURNACES of ONE, TWO, THREE, SEVEN, TEN, FIFTEEN and FORTY GROSS TON CAPACITIES

OFFICES IN PRINCIPAL CITIES



Contractors

Structural Steel and Steel Lumber

Complete Industrial Buildings

STRUCTURAL STEEL

for Buildings and Bridges PROMPT SHIPMENT

JOHN EICHLEAY JR. CO.

Pittsburgh, Pa.

DIETRICH BROTHERS

Structural and Ornamental Iron and Steel Works Large Stock of Standard and Bethlehem Shapes CONCRETE REINFORCEMENTS BALTIMORE, MD.

ROANOKE IRON & BRIDGE WORKS, Inc. Structural and Ornamental Iron

Wrought Steel Fences FROM 1 TO 10,000 LBS.

Gray Iron Castings

Write for Estimates

ROANOKE, VA.

FARRIS BRIDGE COMPANY

Bridges, Coal Tipples, Mill Buildings. Toll Bridges Financed and Built.

At pre-war prices

CHARLESTON, W. VA.

CUMBERLAND, MD.

CHAMPION BRIDGE COMPANY

WILMINGTON, OHIO

MANUFACTURERS OF

Bridges and Structural Work

Southern Office Atlanta, Ga.

Steel Bridges & Buildings

lintic-Marshall Co Pittsburgh



'MITCO"



CURTIS BAY COPPER & IRON WORKS

BALTIMORE, MD.

FABRICATED STEEL

BUILDINGS, BRIDGES, TANKS

GENERAL MACHINISTS

MODEL AND DEVELOPMENT WORK

BUILDINGS—BRIDGES

STRUCTURAL STEEL fabricated for all purposes

If your requirements are for the South, get our prices. Largest facilities and stocks.

THE INGALLS IRON WORKS CO.

Works and Executive Offices: BIRMINGHAM, ALA.

BRANCH OFFICES:

109 City Bunk Bldg. NEW ORLEANS, LA. 16 Exchange Place NEW YORK CITY



Norfolk and Western Rwy. Crossing New River at Pepper, Va.

Bridge Ahead!

Steel Bridges Buildings Etc.

UNNEL, Bridge and Curve-but this Bridge of Steel holds safe each freight and passenger.

Just so can Steel be depended on for every construction project—and no less our ability as Designers and Builders of Steel.

Virginia Bridge & Iron Co.

Memphis Birmingham New Orleans Dallas



Snead Architectural Iron Works

LOUISVILLE, KY.

STRUCTURAL STEEL ORNAMENTAL IRON

Immediate Shipment of all Standard and Bethlehem Shapes

EITHER PLAIN OR FABRICATED

THE PHOENIX IRON CO.

MANUFACTURERS OF OPEN HEARTH

Structural Steel Shapes, Beams, Channels, Angles and Ship Shapes

Works: Phoenixville, Pa. Main Office: Philadelphia, Pa.

OFFICES:

22 S. 15th St., Philadelphia

Munsey Building, Washington
C. of C. Bldg., Rochester

110 State St., Boston
26 Victoria St., London

THE PHOENIX BRIDGE CO.

Engineers, Fabricators and Erectors Bridges and Other Structures of Steel CAPACITY 60,000 TONS

Works and Engineering Office:

Phoenixville, Pa

Fabricated Steel Structures

Tanks, bins, bunkers, stacks, gas mains, piping, producer gas plants and tar extractors. Also have completely equipped pattern shop, gray iron foundry and machine shop for medium heavy work.

THE SMITH GAS ENGINEERING CO. DAYTON, OHIO

CONVERSE BRIDGE & STEEL CO. STRUCTURAL STEEL

Industrial Buildings, Mines, Refineries, and the Building Trade CHATTANOOGA **TENNESSEE**

INTERNATIONAL STEEL & IRON CO.

Department 16

EVANSVILLE, INDIANA

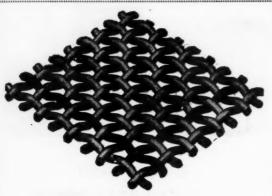


WAREHOUSE AND FABRICATING PLANT-EVANSVILLE, IND.

IRONAND STEEL

Carried in Warehouse Stock for Immediate Shipment STEEL for BRIDGES and BUILDINGS FABRICATED PROMPTLY

Elevators
Cornice and Skylig' to STORE FRONTS Millwork and Glass
Steel Calling CATALOGUE Ornamental Iron
CATALOGUE
CATALOGUE



"Perfect" Double Crimped Wire Cloth is economical for every use in the reduction and concentration of ores because it gives uniform results until worn out.

The double crimping of the wires-the gradual bending of both warp and shoot wires over each other-prevents mesh separation. It also presents a comparatively flat, wearing surface and offers little opportunity for lodgement of particles and eventual clogging. Furthermore all wires are subjected to uniform wear with the result that "Perfect" Screens wear out evenly and, therefore, insure maximum service.

THE LUDLOW-SAYLOR WIRE CO.

ST. LOUIS, MO.

Branch Offices: Felt Bldg., Salt Lake City. Utah; Martin Bldg., El Paso, Tex.; 20 E. Jackson Blvd., Chicago, Ill.

DEXTER METAL LOCKERS

OVER ONE MILLION PEOPLE USE OUR LOCKERS EVERY DAY

HIGH CLASS GOODS

REASONABLE PRICES

GOLF CLUB LOCKERS

Steel Shelving for Every Situation-Equipment for Hotels, Clubs, Apartments, Etc.



Dexter Metal Mfg. Co.

Camden, N. J. No. 9 North Front St.,

SHELVING and LOCKERS

WRITE FOR CATALOGS

FRED MEDART MFG. CO., ST. LOUIS, MO. NEW YORK SAN FRANCISCO CHICAGO
52 Vanderbilt Ave. Right Building 326 West Madison St.

HAMMOND HEATING CO. 110-112 East Second Street - CINCINNATI, OHIO

Warm Air Heating System

"BILT-RITE" PIPE AND PIPELESS FURNACES Work Installed Anywhere





ufur&Co.

IRON AND WIRE BANK WICKETS. RAILINGS AND WINDOW GUARDS

DUFUR, BAGGOTT & CO.

BRASS AND STEEL WIRE WORK OF EVERY DESCRIPTION Absolute Prompt Delivery

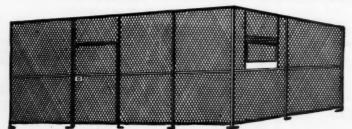
Bank Work Elevator Enclosures Elevator Cabs Counter Railings Grills Wickets Guards Partitions Skylight Protectors, Etc.

403 N. PACA STREET

BALTIMORE, MD.



Wire Enclosures and Partitions for Protection to Your Valuable Stocks and Tools



rooms, tool rooms, divisions—wherever you want them, erected with least effort, cost usually moderate—this is what Meyers partitions offer you.

THE FRED J. MEYERS MANUFACTURING CO.

HAMILTON, OHIO

OTHER PRODUCTS

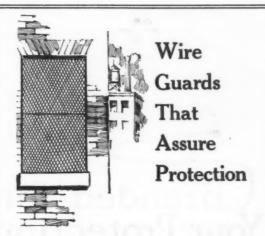
Window Guards Office Railing Wire Signs Machinery Guards Folding Gates Iron Stairs Dipping Baskets











Audubon Round Frame and Channel Iron Frame Factory Window Guards and Skylight Guards are now being used in many of America's biggest and busiest plants. They assure positive protection at all times and when supplied (at a small additional cost) in a galvanized finish, are rust proof and practically indestructible. Audubon Window Guards are easily and securely fastened with staples or screw clips.

AUDUBON

for Industrial Uses

Machine Guards

Audubon double crimped diamond mesh machine guards are built to endure; they are very rigid and capable of standing the roughest usage. We make machine guards to your specifications. Let us know your requirements:—send blue print or lay-out.

The Truck

Audubon double crimped diamond mesh guards for trucks and commercial cars are built with channel iron frame in any size desired. We specialize in the manufacture of fabricated wire work for every commercial use.

What We Make

Brass, Copper, Steel and Galvanized Wire Cloth for every industrial use:—Window guards—Partitions— Stock Room and Elevator Enclosures—Coal and Sand Screens—Sieves and Riddles, Factory Baskets and Wire Specialties.

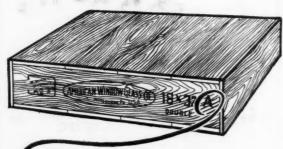
District and Export
Sales Office:

Batcheller-McConnell
Ca.
66 Beaver St.
New York

C. Elmer Cary
1405 Monadnock
Block
Chicago, Ill.

Audubon Wire Cloth Co., Inc. Audubon, New Jersey

3 miles from Philadelphia with direct Railroad Connections



Branded for Your Protection

YOUR guarantee in purchasing American Window Glass Co. product is the grade marking indelibly branded on the end of every box. The standards used in branding this product are so high that our "thirds" are difficult to distinguish from ordinary seconds, our "seconds" from many so-called first-quality lights. Buy in original 50-feet boxes and see that the branded grade marking has not been altered.

For General Glazing

American Window Glass Co. "A" quality lights (seconds) are suitable for high grade residence glazing and many public buildings. Our "B" quality lights (thirds) compare favorably with many seconds on the market. Serious errors in flattening, noticeable discoloration or marked defects are not permitted in "A" or "B" quality glass. Both grades are furnished in single and double strength, in all commercial sizes.

See Sweets Architectural Catalogue for details of our grading standards.

GENERAL OFFICES-PITTSBURGH,PA. Branches in Principal Cities



Frink Reflectors

For

BANKS

STORES

HOTELS

CHURCHES

HOSPITALS

LIBRARIES

PUBLIC BUILDINGS

Our Engineering Department will be glad to give you detailed information and recommendations on receipt of sufficient details.

I. P. FRINK, Inc.

24th St. and 10th Avenue **NEW YORK**

Philadelphia Franklin Trust Bldg.

St. Louis 11th & Olive Streets



STORE FRONT CONSTRUCTION

REFLECTOLYTE Lighting Fixtures

Public and Office Buildings, Churches, Schools Hospitals, Banks, Hotels and Institutions.

Illustrated Catalog on Request

The REFLECTOLYTE Company, 914-G Pine St., St. Louis, Mo.

SKYLIGHT

WIRE

FIGURED COPPER SASH AND BARS

Founded 1864

GLASS COMPANY HIRES-TURNER

WASHINGTON

Philadelphia

Improve Your Finish!

PITTSBURGH PLATE GLASS CO. Newark, N. J.





SHANK COMPANY

Rooms 535-538 30 N. LaSALLE ST.

Ground Purchased and Factories, Warehouses and Office Buildings built to suit Tenants

Chicago, February 28, 1922,

The Masters Builders Co., Cleveland, Ohio.

RE: EDWARD HINES, JR., MEMORIAL HOSPITAL, MAYWOOD, ILL.

Gentlemen:

Your letter regarding our experience in the use of your product, MASTER MIX, for the above job, we take pleasure in answering.

MASTER-MIX was adopted for all the floors in this building which are cement finish, after a thorough investigation of all the various products offered in competition.

We are not sorry for our selection and your claims were all verified and even more so.

The topping was applied on a set slab, and we not only used MASTER-MIX in the top finish, but followed your directions and used it as a bonding coat and it proved its value in this respect. We had but a few hundred square feet that was not bonded, over an area of 600,000 square feet where we found that failure was caused by the slab not being cleaned of plaster that had fallen before topping was applied.

The floor finish with the MASTER-MIX is very dense, hard and dustless. From the contractors standpoint, it is a big advantage for time and labor saving, a claim you make that we doubted at the

We are glad to lend a good word for the advancement of your product. If you could carry these floors around as a sample, you would sell every prospect. Very truly yours,

> SHANK COMPANY, By Geo. H. SHANK, President.

This large institution, the Edward Hines Ir., Memorial Hospital at Maywood, Ill., has 600, 600 square feet of Master Mix Floors. Contractor—Shank Company, Chicago, Acting Supervising Architect—James A. Wetmore.

Master Mix is a liquid integral cement accelerator—hardner, water-proofer and anti-freeze compound. Master Mix, by securing maximum hydration of each particle of the cement, creates as dense concrete as it is possible to obtain. Because of this density, capillary attraction (due to porosity of ordinary concrete) is eliminated, thus rendering the concrete permanently waterproof. Master Mix is no surface treatment—it hardens and densifies the entire topping. This means permanently wearproof floors.

For specifications see pages 202, 203, 7th Edition, Sweet's Engineering Catalog, and pages 104, 105, 17th Architectural Edition.

The Master Builders Co.
Main Offices: CLEVELAND, OHIO
Sales Offices in Seventy Cities
Factories at Cleveland and Irvington. N.J.

Master Mix for Mortar



Only Slidetite makes possible this wide, free entrance. A typical eight-door installation—28' 6" wide, 9' high, with ample space for three cars abreast. Built for Dr. J. C. Criswell, Waynesboro, Pa., by J. W. Rockwell, Contractor and Builder.

Richards-Wilcox Mfg. Co.

Minneapoli

Chicago New York Cleveland
Boston St.Louis Indianapolis
RICHARDS-WILCOX CANADIAN CO. If
Winnings LONDON, ONT

Los Angeles San Francisco

"Slidetite"

for Doorways that are Wide and Free

Manufacturers everywhere are finding *Slidetite* ideal for plant garages and other industrial structures requiring broad, unobstructed doorways. *Slidetite* is the original sliding-folding door hardware. Although widely imitated, it is the only practicable hardware for entrances requiring more than six doors.

Even with a spread of thirty feet, doors hung on *Slidetite* cannot sag or stick. Merely a slight pressure of the hand slides them back on a frictionless, jointless track—flat against the wall.

If your local hardware or lumber dealer cannot supply you with *Slidetite* it may be obtained from our nearest branch. Write today for a copy of Catalog U-28.

"THE CANTON LINE"

of Improved STEEL CEILINGS, Metal Shingles and Copper Bearing Tin Plate

THE CANTON ART METAL COMPANY CANTON, OHIO

SASH OPERATORS—We manufacture Sash Operators of both the tension and torsion types. Let us quote you on your requirements.

THE G. DROUVE COMPANY BRIDGEPORT CONN.

You lay them right over the old roof. There is no exposure. Then again, they are fire and lightning proof. And as to durability—some laid thirty-three years ago are still tight. CORTRIGHT Philadelphia Chicago

STANDARD TIN CLAD FIRE DOORS AND SHUTTERS

Manufacturers of

Steel Rolling Doors and Shutters Cross Horizontal Folding Doors Kal-O-Mine Art Doors Hollow Art Metal Doors Underwriters' Iron Fire Doors Vamanco Freight Elevator Doors Varclad Freight Elevator Doors Fire Door Hardware

PHILIP H. LENDERKING BALTIMORE, - - MARYLAND



for Windows, Doors, Driveways, Etc. also

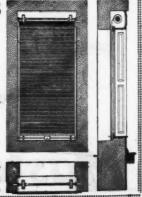
ROLLING PARTITIONS

For Churches, Schools, Hospitals, etc., Wherever Division of Rooms is Required.

Prices Most Reasonable.

SWEDISH VENETIAN BLIND CO.

1269 Broadway, New York Branches in Principal Cities



THE STRUCTURAL SLATE CO.

Pen Argyl, Pa.



Largest Producers of Structural Slate for Architectural and Industrial purposes.

Toilet Enclosures Stairs

Shower Stalls Laundry Tubs

Sinks and Sink Tops, Tanks, Vats, etc.



SHINGLES

All Forms of Roofings Galvanized Sheets Sheet Metal Specialties

THE SOUTHERN SHEET & TIN PLATE CO. ASHLAND



AN EDWARDS METAL SPANISH

COSTS NO MORE THAN A GOOD TIN ROOF

inches.

Descriptive Literature and Sample on request.



The Edwards Mfg. Co. 411-431 Culvert St. Cincinnati, O.

The World's Largest Manufacturers of Metal Roofing, Metal Shingles, Metal Spanish Tile, Metal Ceilings, Metal Garages, Portable Buildings, Rolling Steel Doors, Partitions, etc.

IMPORTERS AND JOBBERS METALS, TIN PLATES AND ROOFING Gordon Metal Company

14th & Dock Sts. RICHMOND, VA.

IMPERIAL ROOFING TILES

MADE BY

LUDOWICI-CELADON COMPANY

Write for Literature and Prices

GENERAL OFFICES - Monroe Building - CHICAGO, ILL.



VENDOR SLATE CO.

EASTON, PENNSYLVANIA Roofing Slate in The

Branch Offices:

ROBERTSON PROCESS METAL

A Rust and Corrosion-Proof Building Material for Permanent Roofs, Siding and Trim Write for Sample H. H. ROBERTSON CO., Pittsburgh, Pa.

Scaffolding

for millwrights, painters, paperhangers, carpenters, plasterers, tinners and contractors.

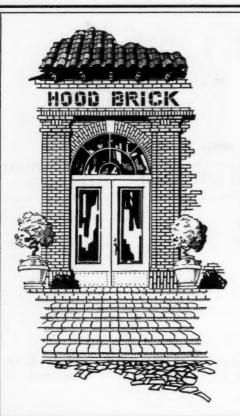


Scaffold Jacks, as above illustrated, are made in all sizes from 2 to 16 feet

We specialize on Scaffolding and Millwright Step Ladders for factory use.

Write for Catalogue illustrating all kinds of ladders

John J. Macklem Scaffolding Co. Goshen, Indiana



Introducing

"RIVIERA"

A true California Spanish Mission Roofing Tile in a range of soft autumn foliage shades.



Unfading-Everlasting-and "Within Reach"

Manufactured for first time in the East by

B. Mifflin Hood Brick Co.

Atlanta, Georgia

Phone, Hemlock 3100

EHAMELEO BRICKTALKS for Architects

Enameled Brick for Residences

A bright, clean and thoroughly sanitary exterior is most essential for the modern residence.

The Beauty and Individuality, as well as the permanent qualities, of

"ENAMELED BRICK"

should also be taken into consideration when preparing your plans and specifications, for exterior as well as interior.

American Enameled Brick & Tile Co.

Manufacturers of

ENAMELED AND FIRE BRICK.

FACE BRICK OF ALL COLORS AND **TEXTURES**

52 Vanderhilt Avenue, New York

Samples on display in Architects Samples Corporation, New York City. See pages in Sweet's Architectural Catalogue, also Specifica-tion Data.



GEO. S BEIMDIEK.

CARTHAGE MARBLE & WHITE LIME CO.

HIGH GRADE SIBLEY FACE BRICK

RED, BUFF AND FLASH

Birmingham Clay Products Co.

901-4 Woodward Bldg.

Birmingham, Ala.

Two RedTEX FACE BRICK Flashed Brick

LOCK HAVEN BRICK & TILE CO.

Brick of Quality

Lock Haven

We help you build NOW TILE at pre-war prices

WRITE us for our delivered prices on Till for Floors or Walls, of any kind.

We can ship promptly CERAMIC, QUARRY or FLINT Floor TLE, Glazed or Matt Finish Wall TILE and Trim, in car lots or less.

State Quantities wanted.

SOUTHERN MOSAIC TILE CO. Candler Bldg. ATLANTA, GA.

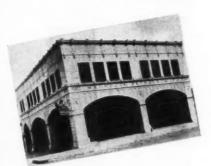


Service Station and Office Building Magnolia Petroleum Co.

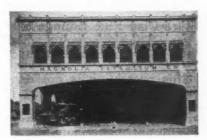
Lang & Witchell, Architects
Childs-Lassell Const. Co., Builders



San Antonio Adams & Adams, Architects Coleman & Jenkins, Builders



Amarillo
Clarkson & Gaines, Architects
C. S. Lambie Co., Builders



Fort Worth
Clarkson & Gaines, Architects
J. C. Buchanan, Builders



Houston Alfred C. Finn, Architect Albert Baring, Builder

Oil-proof and Dirt-proof!

All the dirt, oil and grease that accumulates on the walls of these buildings can be washed off with soap and water, and the original clean, bright surface restored.

Not only clean and attractive today but will remain so for the years to come!

That is why the Magnolia Petroleum Co. chose Atlanta Terra Cotta of a light grey unglazed color for their five large service stations in these five Texas cities.

Atlanta Terra Cotta Company

Citizens & Southern Bank Building Atlanta, Georgia

Southwestern Office
A. P. Clark, District Manager
Praetorian Building
Dallas, Texas

From Leaky Sooty Chimneys

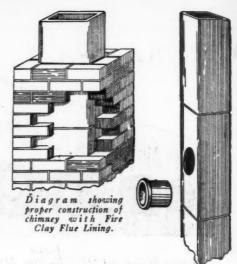
Yes, that is the cause of most fires,—the mortar disintegrates and falls out, leaving wooden parts exposed, and every time this happens you are running a risk of fire.

Fire Clay Flue Linings eliminate the danger. They give you a smooth surface and the gases have no effect upon their surface.

This protection is not expensive and absolute insurance from fire is only possible this way.

Why not make your house as fireproof as possible by using the proper construction for chimneys.

Write for booklet which will tell you in detail all about Fire Clay Flue Linings.



Fire Clay Flue Lining for chimneys and Fire Clay Thimble to carry stove pipes through walls to chimneys.



ORNAMENTAL CHIMNEY CAPS WILL PRESERVE THE TOPS OF YOUR CHIMNEYS.



2.

NECHES VALLEY RED GUM

Plain and **Quarter** Sawn

KIRBY-BONNER LUMBER COMPANY

HOUSTON, TEXAS

BRANCH OFFICES:

New York Chicago Cleveland Kansas City St. Louis Oklahoma City Waco San Antonio Dallas New Orleans Mobile

Kirby

Quality"

LOWE'S METALLIC PAINTS



For Preserving Railroad Cars Wagons, Agri-cultural Implements. Barns, Bridges, etc., has no equal. Fine grind and uniformity of color supranteed.

Correspondence Solicited Chattanooga Paint Company CHATTANOOGA, TENN.

CUTLER MAIL CHUTES

A complete and experienced organization in office, factory and field insures the continued maintenance of highest quality and the prompt and satisfactory completion of work.

CUTLER MAIL CHUTE COMPANY
Offices: ROCHESTER, N. Y. Factor, Offices: Cutler Building

The Beautiful Blended Tones of KINGSPORT ARTISTIC BRICK

Are obtained solely by scientifically burning the wonderful clays in our deposits. No chemicals or foreign ingredients are used whatever.

The wide range of color tones blend harmoniously and give the finished structure a distinctive individuality that enhances the value and salability of the building.

> Write for samples and prices before selecting your brick.

KINGSPORT BRICK CORPORATION

"Fisklock" Brick

will save 40 per cent of your labor, make the dryest wall of any material, and is the only hollow material that bonds perfectly with both face and common brick. Immediate delivery in shale, rough texture, or common brick quality. Investigate this brick before you buy!

Specify: "FISKLOCK" BRICK, for all Bearing walls.

F. GRAHAM WILLIAMS

CANDLER BUILDING ATLANTA. GEORGIA

or smooth, also Fisk-lock Brick and Hollow Tile.

We have all colors of Face Brick in either Rough Texture



What it is What it is used for "

HE forests of Southern Pine are found in the Gulf States, stretching in an almost unbroken belt from Florida to Texas, and north into Arkansas and Oklahoma.

Although definitely restricted in the area of its growth, the qualities and adaptability of Southern Pine are so varied that its distribution is limited only by the confines of civilization and the facilities for transportation. In the United States, its place in manufacture and building is such that nearly one-third of all the lumber consumed is Southern Pine.

Southern Pine is heavy and strong, and is unexcelled in hardness and durability when exposed to the weather or in contact with the soil. It is well manufacturedtough and straight-grained, does not warp or split in seasoning, and can be had in large sizes and long lengths.

It is worth the time of every one interested in the lumber industry to study the facts concerning this wood and the characteristics which have enabled it to stand so pre-eminently among its competitors. These facts are set forth in a new book of 32 pages, hand-somely bound and illustrated, "Southern Pine—What It Is—What It Is Used For," which discusses entertainingly the Pines of the South, their properties and uses.

Single copies of this book will be sent free on request.

Southern Pine Association



Central Coal Coke Company

General Offices Kansas City, Mo.

BRANCH SALES OFFICES

Chicago, Ill. Indianapolis, Ind. Houston, Texas Dallas, Texas

MILLS

Carson, La. Neame, La. Conroe, Texas

The year 1921 was the greatest year in volume of construction during the period 1915 to 1921, inclusive, and this year building permits have exceeded those of last year practically 60 per cent. The prospects are that building permits for the balance of the year will exceed. At practically the same ratio, the totals for the same months of last year. From this information, it is reasonable to assume that the total volume of building permits in the cities of this country for 1922 will exceed two billion dollars.



Manufacturers SOUTHERN PINE

"LONG AND SHORT LEAF"



Yellow Pine

Structural Material for Industrial Plants.

Bridge, Trestle, Car and Railroad Stock.

Central Gulf Lumber Co., Inc.

New Orleans, La.

SOUTHERN YELLOW

TIMBERS OUR SPECIALTY We also carry a full stock of Yard Items, Moulding, Lath, etc.

R. W. WIER LUMBER COMPANY
HOUSTON, TEXAS
Distributors:
WIER LONG LEAF LUMBER COMPANY
Mills: WIERGATE, TEXAS

Structural Timbers-FORM LUMBER-FACTORY FLOORING FRAMING-BOARDS-FLOORING-ETC H. F. STANLEY LUMBER COMPANY

JACKSON, MISS.



In construction where strength and durability are important, no wood commercially available can take the place of Long Leaf Southern Pine-providing it has been carefully manufactured and correctly graded.

Our mills give particular attention to Southern Pine items used in car building, mill construction and other building wherein there must be no question about strength and durability.

Yet our lumber and timbers cost no more than ordinary lumber and timbers.

LONG and SHORT LEAF SOUTHERN PINE Yard and Shed Stock-Heavy Structural Material

> We are manufacturers of the famous ESSCO Heart Flooring for homes, office buildings, factories, etc. Each bundle is identified with the Heart Label.

smalle le

stringers.

struction.

For Factory Builders-Close Grained Virgin Long Leaf Timbers and heavy lumber for slow combustion con-

LONG BUILDING

KANSAS CITY, MISSOURI

(Formerly Missouri Lumber & Land Exchange Co.

R. B. White, President and General Manager F. R. Watkins, Sec'y and Mgr. Yard Sales R. S. Price, Mgr. Railroad and Timber Sales



INDUSTRIAL LUMBER COMPANY

General Offices-ELIZABETH, LOUISIANA

Calcasieu Long Leaf Yellow Pine Lumber

RAILROAD AND CONSTRUCTION TIMBERS A SPECIALTY

ANNUAL CAPACITY, 200 MILLION FEET

3 Modern Mills in Louisiana

Manufactured according to your requirements

THOS. W. BLAKE LUMBER CO. WHOLESALERS AND MANUFACTURERS YELLOW PINE

HARDWOODS, CYPRESS, WEST COAST LUMBER AND SHINGLES, TIES AND PILING WE SPECIALIZE IN OIL FIELD TIMBERS AND CARRY IN STOCK DERRICKS & RIGS.

1216 Carter Building

HOUSTON, TEXAS

A. S. BACON & SONS LONG AND SHORT LEAF PINE

Rough and Dressed SAVANNAH, GA.

Wire, Telephone or Write Us Your Needs

Maple Flooring Is THE BEST Factory Flooring

Where hard usage puts flooring to the supreme test,—in factory, warehouse or mill, Maple Flooring is always preferable. Write us today for full information as to sizes and grades, also delivered prices in any quantity, anywhere.

E. BARTHOLOMEW HARDWOOD COMPANY 4050 Princeton Avenue. CHICAGO

I.UMBER AND MILLWORK

Center-bored Factory Columns, long-leaf yellow pine, a Specialty.

We furnish at least three-fourths of the South's requirements of Cotton-mill Columns.

Cordele Sash, Door & Lumber Co. CORDELE, GA.

MORGAN **Doors and Millwork**

MORGAN MILLWORK CO.

113-129 West North Ave., Baltimore, Md.

ROLINA PORTLAND CEMENT CO.

Short Leaf Yellow Pine

Close grain, short leaf finish. We make a specialty of 2 x 4s S 4 S, standard and 1/4 scant.

Oak - Cressties

McRae Lumber Co., Corinth, Miss.

1,500,000 feet dry stock now ready

POPLAR, WHITE AND RED OAK RED AND TUPELO GUM MAGNOLIA

Glad to have inquiries from responsible buyers. EASTMAN-GARDINER HARDWOOD CO. LAUREL, MISS.

HE PREVENTION OF SAP-STAIN OR B WE RECOMMEND OU



WRITE FOR PRICES, FREIGHT AND FULL PARTICULARS. HIGHEST TEST GUARANTEED.

CHURCH & DWIGHT CO. MANUFACTURERS, 27 CEDAR ST. NEW YORK, ESTABLISHED OVER 70 YEARS

2.

EPPINGER & RUSSELL CO. 165 BROADWAY, NEW YORK CREOSOTED LUMBER, TIES, PILES, TELEGRAPH POLES, HEAVY TIMBERS, CROSS-ARMS, ETC. ETC.

PLANTS at JACKSONVILLE, FLA. LONG ISLAND CITY, N. Y. CAPACITY 100,000,000 Ft. B. M. Per annum.

RAIL or WATER Shipments, FREE WHARFAGE, Large STORAGE YARDS and DOCKS.

We also MANUFACTURE Lumber, Sawn and Hewn Ties, Piles, Poles, Etc. Both Yellow Pine and Cypress.

WE SOLICIT your INQUIRIES for CREOSOTED and UNTREATED PINE PRODUCTS.

Creo-pine Block Floors outlast the plant and effect maximum floor economy. Assure freedom from floor repair or replacement costs.

SOUTHERN WOOD PRESERVING COMPANY
Allanta, Ga.

Creo-pine conduit, cross arms, fence
posts, cross ties, timber and piling

SOUTHERN CREOSOTING COMPANY, Ltd. SLIDELL, LA. U. S. A.

Twenty-eight miles from New Orleans, La., surrounded by the finest timber lands in the South. Facilities for shipping by water and rail.

Creosoted Ties, Telegraph Poles, Cross-Arms Timber, Piles and Paving Blocks Capacity 22,000,000 feet per annum.

A. B. C. Code used.

Cable Address, Creosote, Slidell, La.

THE SAVANNAH CREOSOTING COMPANY INCORPORATED

PORT WENTWORTH, SAVANNAH, GA. CREOSOTED CROSS ARMS, LUMBER, TIES, PILES AND POLES

Private Wharf Capacity 50,000,000 Feet B. M. Per Annum Savannah River Feet WESTERN UNION CODE

Piles, Timbers

Cross Ties

AMCRECO

Piling, Lumber

Paving Block

American Creosoting Co., Inc.
Louisville, Kentucky
Calonial Creosoting Co., Inc.
Beglins, Louisian
Beglins, Louisian

AMERICAN CREOSOTE WORKS, NEW ORLEANS, LA.

(INCORPORATED)

Creosoted Cross-Arms, Lumber, Paving Blocks,
Piles, Poles and Ties
Private free wharf for ocean
vessels at New Orleans.
Western Union and A. B. C. 5th Edition Codes.
Plant at New Orleans, La.
Winnfield, La.

HENRY O. WILLIAMS BERZELIA, GA.

CRATING MATERIALS

TUPELO EXCLUSIVELY

"THE SOFTWOOD HARDWOOD" PRICES RIGHT

GULFPORT CREOSOTING COMPANY

GULFPORT, MISS.

Send us your inquiries direct when in the market for creosoted materials of any description, or desire figures for preparing estimates.

AMERICAN LUMBER COMPANY

LAUREL, MISS. MAKERS AND SHIPPERS OF

EKONOMEE KRATING

FONE

TELEGRAPH

CREOSOTED LONG AND SHORT YELLOW PINE

Structural Timbers, Cross Ties Crossarms, Fence Posts Piling, Poles Wood Blocks Lumber

We make shipments by rail or water. Inquiries given prompt attention. Estimates gladly furnished.

Give us an opportunity to quote on your re-

Pensacola Creosoting Company, Inc. PENSACOLA, FLA.

DON'T ROB YOURSELF

EVERLASTING CREOSOTED PINE FOR ALL STRUCTURES

Let us quote you

CREOSOTED MATERIALS COMPANY, INC.

301 Queen & Crescent Bldg.,

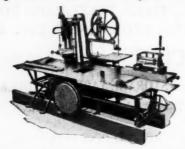
New Orleans, La.

Eastern Office:

District National Bank Bldg.,

Washington, D. C.

Do you want cheap labor?



This Parks Planing Mill Special solves the cheap labor problem for you. One skilled man and this Parks can do the work of six. The cost is less than the cheapest hand labor and the skilled man does more and better work. Pays for itself in one year We have facts and figures to prove this. Ask for them.

Parks Planing Mill Special 8 machines in 1 5525 10 years' 10 Days' Trial

Other Parks Woodworkers \$60 and up. Send for Catalog.

THE PARKS BALL BEARING MACHINE CO. 1544 Knowiton Street CINCINNATI, OHIO

Canadian Factory: 200 Notre Dame East, Montreal, Canada

ORMAC

ENGINES

BOILERS

SAW MILLS

Complete outfits 5M to 50M feet

A Good Saw Mill for your Tractor MILL SUPPLIES

CORINTH MACHINERY CO.

CORINTH, MISS.

VENEER MACHINERY LATEST IMPROVED

FOUNDER & MACHINIST

E. E. TITUS

PETERSBURG, VA.



SAW MILLS and WOODWORKING MACHINERY CONTRACTORS' WOODWORKERS and HOISTS

American Saw Mill Machinery Co.,

Catalog on request 69 Main St. Hackettstown, N. J.



- Engineering Without Obligation

Allen Engineering & Manufacturing Co.

P. O. Box 1411 . SAVANNAH, GEORGIA



Shreveport Blow-Pipe and Sheet Iron Works

Dust Collectors

Complete System

SHREVEPORT BLOW-PIPE and SHEET IRON WORKS, Lid., Shreveport, La.

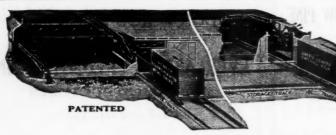
SLOW SPEED FANS AND BLOW PIPE SYSTEMS

For Woodworking Factories and Dust Producing Machinery. Complete Equipments Furnished and Installed.

National Blow Pipe & Mfg. Co., Ltd.

736 Dryades Street

New Orleans, La.



MOORE'S AIR DRYING VENEER KILN

Gives the operator absolute control over the forces nature uses in its drying processes, viz: Volume of air, temperature and humidity. Write our nearest office for particulars.

MOORE DRY KILN COMPANY

"Kiln Builders Since 1879"

Jacksonville, Fla.

North Portland, Ore.

"Warehouse Gang Swear by It"

"Hook 'er to the Biler" THE RIDGWAY & SON CO., Coatesville, Pa.

Elevator Makers to Folks Who Know

We carry a half-page ad in *The Dodge Idea*, the house gan of the Dodge Mfg. Co., Mishawaka, Ind., the greatest aker of pulleys, shafting and appurtenances in the

The Editor in writing about copy for our ads has th's Postscrint:

"Dodge Mfg. Co. have a 'Hook 'er to the Biler' in their warehouse, and I watched it work the other day. Pretty Slick! And the warehouse gang swear by it, too."

The Dodge Mfg. Co. have other Ridgway Elevators.

This particular warehouse elevator has been in constant use 12 years without a single repair.

Always ready for work and perfect in performance.

Your gang on your elevator swear at it don't they?

How any man with steam available can be persuaded to use anything but Ridgway Elevators can only be explained one way. But never mind, the Smart ones all







in Large

BERLOY Standard High Grade Steel Backed By Real Service.

Ask About—METAL CEILINGS, SHINGLES, SPOUTING, ROOFING, SIDING, LOCKERS, FILING CASES, SHELVING, METAL LATH, METAL LUMBER.

The Berger Mfg. Co., Canton, Ohio Philadelphia. Roanoke, Jacksonville, Dallas BERLOY

ELEVATORS

BALL BROS COUNCIL BLUFFS, IOWA

NGER DUMBWAITERS HAND
GHT A Complete Line ELE
We can change your hand power to electric

EVATORS

The Westbrook is the result of care-ful study and tests of competent en-



Single Wrap Traction Type Machine

FOR PASSENGER AND FREIGHT SERVICE

WESTBROOK ELEVATOR MANUFACTURING CO., Inc. DANVILLE, VIRGINIA

EVATORS MOFFATT MACHINERY MFG. CO.

HAND-BELT-ELECTRIC AND HYDRAULIC

MACHINISTS AND FOUNDERS CHARLOTTE, N. C.

Standard for nearly half a century. Passenger and Freight.

ELEVATORS

K. C. ELEVATOR MFG. CO. (Established 1881)

2601-3-5-7 Madison Ave., Kansas City, Mo.

W. J. WESTBROOK ELEVATOR CO.

Manufacturers of

Passenger and All Types Freight Elevators

Factory and Main Office

Greensboro

North Carolina

WARSAW ELEVATOR COMPANY

T. FRANK WILHELM, Manager

SPECIAL ATTENTION GIVEN TO REPAIRS

Office and Warehouse

Mercer, Grant and Water Sts. BALTIMORE, MD.

.

Over 30 years of Elevator Building Experience is put into every

McINNERNEY

Passenger and Freight Elevator

THE McINNERNEY COMPANY COUNCIL BLUFFS, IOWA

No



In The South

The Eco is the most generally used watch-clock. In a section where watchmen's rounds are frequently made to stations out of doors a device is needed that will stand rough usage.

The Eco Portable Watchman's Clock is built for service. Write for full particulars.

ECO CLOCK COMPANY

QUALITY PARAMOUNT

194 Congress Street.

BOSTON, MASS.



The CHICAGO Approved Portable WATCHMAN'S CLOCK

with its special Waltham movement, its lock stations and its superior quality throughout, is especially desirable for mills and factories and for either indoor or outdoor patrol.

Write for Catalogue

CHICAGO WATCHMAN'S CLOCK WORKS

Chicago New York San Francisco 9 Church St. 25 Minna St.



CONTRACT WORK WANT

Castings, Special Machinery, Forgings, Machine Work, Etc.

Small DROP FORGINGS TO ORDER

THE SCRANTON FORGING COMPANY SCRANTON, PA.

PATTERNS

May we have your inquiries American Pattern Works Company YORK, PA.

Dixie Brass & Foundry Company

STEEL CASTINGS

Electric and Open Hearth
Any kind from 1 lb. to 10 tons
Saw mill, mining machinery, motor truck, heavy or light
castings for any purpose. Fast deliveries to the South.
Send us an inquiry.

THE OHIO STEEL FOUNDRY CO. SPRINGFIELD, OHIO

Plants at Lima, Springfield and Bucyrus, Ohio.

Brass, Copper, Bronze, Grey Iron and Semi-Steel and Aluminum Castings, Wood and Metal Patterns, Alloys of Every Description Works: 6th Avenue and 13th Street, N. BIRMINGHAM, ALA.

MACHINE AND DROP

No Order Too Large-None Too Small for Our Careful Attention THE COLUMBUS FORGE & IRON COMPANY

COLUMBUS, OHIO

WE MAKE A SPECIALTY OF

HIGH GRADE GREY IRON AND SEMI-STEEL CASTINGS

All Kinds of Machine Work. Special Machines Made to Order.
Prices Will Suit You. Prompt Service.

Salem Foundry & Machine Works

We carry large stocks Steel and Iron Rounds, Nuts, Track Bolts and Spikes

BOLTS-STUDS TIE RODS-STAYBOLTS ATLANTA BOLT AND STEEL PRODUCTS CO. 193 S. HUMPHRIES ST.

STEEL (

Weighing from 1 lb. to 300 lbs. each

Suitable for Dogs, Clamps, Wheels, Pinions and other castings where strength is required.

Used almost exclusively for Automobile Work.
Quick deliveries. Your inquiries solicited.

CRUCIBLE STEEL CASTING CO., Lansdowne, Del. Co., Pa.

For has meant highest 36 reputation in Foundry Supplies Years

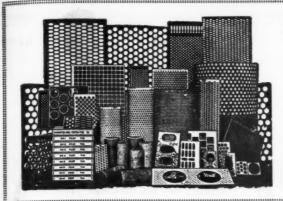
> Facings, Plumbago, Core Compound, Parting and Every Foundry Requirement.

> > Write for prices.

THE HILL & GRIFFITH CO.,

Factories and Offices: CINCINNATI, OHIO BIRMINGHAM, ALA.

Warehouse: CHICAGO, ILL. 22



PERFORATED METAL

All Sizes and Shapes of Holes
In Any Kind of Metal
FOR USE IN

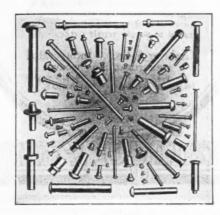
FUR USE I

Cottonseed-Oil Mills Fertilizer Works Phosphate Plants Sugar Houses Pulp and Paper Mills
Rice Hullers
Textile Mills
Coal, Ore and Gravel
Screens

The Harring con & King Performing ()

114 Liberty St. New York City

619 N. Union Ave. Chicago



PERFORATED METAL SCREENS FOR ALL PURPOSES Elevator Buckets, Conveyor Trough & Flights Stacks and Tanks

Elevator Buckets, Conveyor Trough & Flights
Stacks and Tanks
General Sheet and Light Structural Work
Light and Heavy Steel Plate Construction
HENDRICK MFG. COMPANY, Carbondale, Pa.

New York Office - - 30 Church St.
Pittsburgh Office - 544 Union Arcade Bldg.
Hazleton, Pa., Office - 705 Markle Bank Bldg.

Rochester, N.

MACHINE SCREWS

Hexagon and Square Iron and Brass Nuts. Interchangeable Bolts and Nuts (Promco Brand) Special Screws and quality Rivets to order.

Submit samples and advise as to quantity. Catalog for the asking.

THE PROGRESSIVE MANUFACTURING CO. TORRINGTON, CONN.



MANHATTAN PERFORATED METAL CO.

PERFORATED METALS HEADQUARTERS
Cotton Seed Oil Works a Specialty

Send for Samples ERDLE PERFORATING CO.

Office and Works: 237-239 Centre St., New York



of All Kinds of Metals for All Industries Write for Copper, Brass, Tin, Zinc or Aluminum Catalog











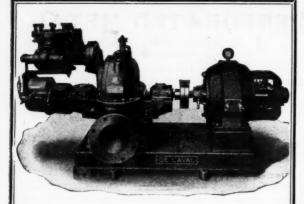
We punch and perforate steel, copper, brass, zinc, aluminum, tin and all other metals to meet every requirement.

The experience of 43 years perforating metals is yours for the asking. Our illustrated catalogue will interest you. Copy sent on your request.

CHARLES MUNDT & SONS

490 Johnston Avenue

IEDSEV CITY N I



A 10-KW. Direct Current Generating Set

The speeds of small direct current generators are such that they can advantageously be connected directly to steam turbines. The accompanying photograph shows a De Laval unit of this type. The steam turbine is of the latest design, intended to use high pressure, high temperature steam, the steam chest being well removed from the bearings, so that the latter are not overheated by the steam. The speed is controlled by a powerful and accurate governor operating a balanced valve, while overspeeding is prevented by an entirely independent emergency trip, which operates the trip valve.

For direct current units of large size we recommend the De Laval speed-reducing gear, which enables us to supply an efficient turbine with a standard-speed direct-current generator.

De Laval turbines are built for all steam conditions and in all capacities up to 15,000 hp., and for driving all kinds of machinery at all speeds. State steam conditions and your particular requirements, and ask for special publication C91.

De Laval

Steam Turbine Co.

Local Offices: Boston, New York, Philadelphia, Pittsburgh, Cleveland, Indianapolis, Chicago, Duluth, Kansas City, Denver, Salt Lake City, Charlotte, Atlanta, Birmingham New Orleans, Dallas, Seattle, San Francisco, Los Angeles, Montreal, Toronto, Vancouver.



LARLE - CENTRIFUGAL - PUMPS



For all purposes where Centrifugal Pumps of the better class are adopted

The Earle Gear & Mach. Co.

ORRISince

Since 18⁴ Morris has been building Centrifugal Pumps, Hydraulic Dredges and Steam Engines. You can depend upon the Morris reputation.

Morris Machine Works, Baldwinsville, N. Y.
Agents in Principal (lites

MYERS Honor-Bilt



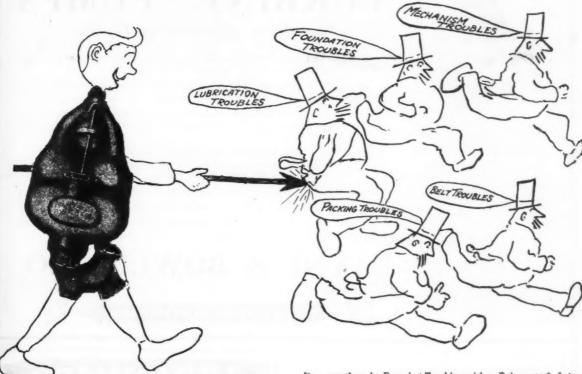
Claims for superiority of product are worthless unless substantiated by the service giving qualities of the product itself. The thousands of MYERS FOWER PUMPS and WORKING HEADS installed and in use under every conceivable pumping condition are a testimony of their ability to satisfactorily perform the pumping duties assigned to them while our yearly production of nearly 25,000 power pumps is integel proof that they give excellent service to users.

If you contemplate the installation of one or more Hand or Power Pumps for any service, write us for a copy of our catalog before you make a decision.

The F. E. Myers & Bro. Co., Ashland, Ohio

POWER PUMPS

The Pulsometer Drives Away Your Pumping Troubles



Note the small size Steam Pipes.	Sizes of Pipes, Inches				-		AND					
	No.	No.	Suction	Discharge	Gallons Per Minute	Horse Powe Boiler	Weight	Note the small Boilers				
	2	1	11	13	25	4	95					
	3	1	2	2	70	5	140					
	4	1	21	21	125	6	295	required				
	5	1	3	3	200	9	430					
	6	3.4	31	31	350	12	570					
	7	2	4	4	450	15	745					
	8	1	5	5	750	25	1,375					
	9	11	7	6	1,100	35	2,100					
	10	2	8	8	2,200	70	3,800					

How can there be Pumping Troubles with a Pulsometer? It has no cams, rods, pistons, packing and other trouble-making inside mechanism to get out of order. It has no sliding parts. It requires no lubrication. It requires no belting. It requires no adjusting, no attention. You do not have to build a foundation. Just hang the Pulsometer on a hook, stick the suction into the water, turn on the steam (exhaust steam will do)-and it will begin pumping and keep it up until it sucks dry.

Note. It's easy to get a Pulsometer. You can rent, lease or buy one. Just get in touch with us.

Get a catalog from us or the agent nearest

PULSOMETER STEAM PUMP CO.

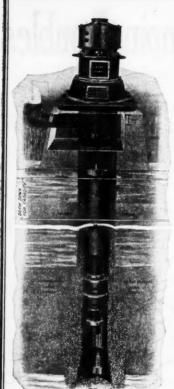
Executive Offices: 223 West 42nd St., New York City

Agencies in the Following Cities:

Henry H. Meyer Company,
110 S. Howard St. BALTIMORE
Kelly-Derby Co., Inc.,
People's Gas Bilds ... CHICAGO
Beckwith Machinery Co.
1500-02 Lakesale Ave. CLEVELAND
The K. B. Noble Company,
249 Pearl St. HARTFORD. CONN.
J. L. Welborn. HATTIESRURG, MISS.
Miller Supply Co. HUNTINGTON. W. VA.
H. A. Paine, 119 Main St. HOUSTON, TEX.
Harron, Rickard & M-Cone.
125 S. San Pedro St. LOS ANGELES. Car

Hunter Machinery Co., West side of 16th St. Viaduct.MILWAUKEE Wm H. Ziegler Company.
423 S. Fifth St. . . . MINNEAPOLIS
Turner Supply Co. . . . MOBILE. ALA. F. H. Hopkins Company MONTREAL Woodward Wight & Company, Ltd. NEW ORLEANS Berow Machinery Co., 220 West 42nd St. ... NEW YORK CITY Edelen & Co., 235 Commercial Trust Bldg . PHILADELPHIA

Beckwith Machinery Co., 108 Parkway N. S. PITTSBURGH Harron, Rickard & McCone, 139 Townsend St. SAN FRANCISCO Powell Equipment Co., 403 McArthur Bldg..... WINNIPEG. CAN. Harvard Turnbull & Co. Excelsior Life Bldg.....TORONTO, CAN.



LAYNE VERTICAL TURBINE PUMPS

The Acme of Inventive Genius

The Layne Pump is conceded by pumping authorities to represent the highest type of pump for delivering water from wells.

It is extremely simple, there being only two mechanical working parts, both operating in an oil bath and water cooled.

Layne pumps are designed to be installed directly into well casings from 10 inches diameter and up at capacities of 200 to 5000 gallons per minute against any head desired.

We also contract to install complete well and pumping installations on a guaranteed "water-or-no-pay" plan, backed by a bond.

Hundreds of such installations show our cost per thousand gallons of water to be 20% to 60% less than systems replaced.

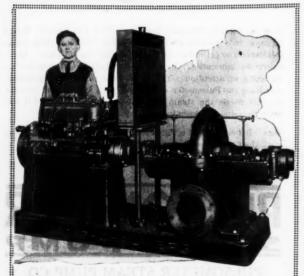
If you have a water problem—or think you have—write us. Send for our literature anyway.

LAYNE & BOWLER CO.



"WORLD'S LARGEST WATER DEVELOPERS"





A gasoline engine driven auxiliary pump for fire or stand by service will insure uninterrupted water supply if there is a shortage of coal or failure of the electric supply.

> Our Engineers will assist you to solve your pumping problems

ALLIS-CHALMERS

District offices in all important cities

HUMDINGER Diaphragm Force Pumps

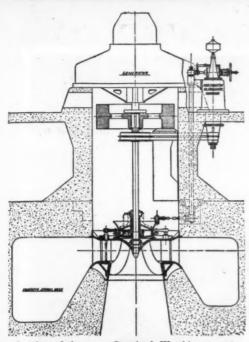
FOR A LOT OF GOOD REASONS



For efficient pumping service—The Humdinger.
For economical pumping service—The Humdinger.
For a fifty-foot water lift—The Humdinger.
For a no splash, no puddle pump—The Humdinger.
For the best Diaphragm Force Pump, bar none—THE HUMDINGER.

Send for Catalog "M" Showing Full Line of Carter Pumps

RALPH B. CARTER COMPANY 152 CHAMBERS ST. NEW YORK, N.Y.



Another of the seven Standard Worthington settings which cover practically every hydraulic power situation. This setting is best for heads from 25 to 50 feet.

Standardized Means Better Design

The individual parts of Worthington Hydraulic Turbines are standardized throughout, so that each element receives more careful study and more complete testing than is possible in special designs for each occasion.

Building turbines out of standard parts not only eliminates many chances for error in the design of minor details, but also cuts the cost of repairs.



WORTHINGTON PUMP AND MACHINERY CORPORATION

Executive Offices: 115 Broadway, New York City

Branch Offices in 24 Large Cities

W 43.4



WELL DRILLING

AND DEEP WELL PUMPS

We have a Very Efficient System Pumping that we wish to tell you about the for Catalog M.

SYDNOR PUMP & WELL CO., Inc., Richmond, Va.



HUGHES SPECIALTY WELL DRILLING CO.

CHARLESTON

ATLANTA

TURBINE WATER WHEELS LEFFEL

HIGH SPEEDS, HIGH POWERS HIGH EFFICIENCIES

A recent Test of This Type of Turbine in Place Under 21 Ft. Head developed 1200 H.P., 134 R.P.M. Efficiency

91.2%

Write For Bulletins

THE JAMES LEFFEL & CO. SPRINGFIELD, OHIO

BRANCH OFFICES

Atlanta, Ga. - 4th Nat'l Bank Bldg. New York, N. Y. - 29 Cortlandt St. Boston, Mass. - 161 Devonshire St. Minneapolis, Minn. - Plymouth Bldg.



For Steam, Belt, Direct Connection of Electric Motor or any other convenient form of drive, Single and Double Stroke

COOK DEEP WELL PUMPS

Cook's Patent Brass Tube Well Strainers

Deep Well Cylinders

Sucker Rods and Well Tools

Deep Well Pumping Systems Installed Complete

COOK gle-Strok eep Well wer Head

WRITE FOR CATALOGUE No. 14-H

A. D. COOK

awrenceburg

COOK Patent rass Tube Brass Tube Well Strainer





Nove



Above is a view of one of the erecting floors of the world's largest hydraulic turbine works where large water power units are assembled to insure the proper fitting of each and every part, before being dismantled for shipment.

In the background are shown four vertical shaft

TURBINES

in cast iron spiral flumes, capable of developing 17,000 H.P. each at 171 R.P.M. under 135 ft. head for installation at the Tugalo Development of Georgia Railway and Power Company.

If interested in modern water power development, write Department "M" for Bulletin of Designs

BOSTON 176 Federal St. CHICAGO MONTREAL 76 W. Monroe St. 405 Power Bldg.

SAN FRANCISCO 461 Market St.

Branch Offices:

SALT LAKE CITY 301 Dooly Block

ATLANTA Citizens & So. Bk. Bldg.

PORTLAND, ORE. 224 Pine St.

S.MORGAN SMITH COMPANY YORK, PA.U.S.A.

PIPE

Standard Black and Galvanized Pipe-Casing-Tubing-Drive Pipe-Rotary Drill Pipe.

Every length of pipe manufactured by this company bears the name "Republic" whether the small ½" size used in domestic plumbing or the large 12" and 16" sizes used in the oil country. Say "Republic" when you specify pipe, no matter what the size or purpose. We manufacture all sizes of pipe ranging from ½" to 16" O. D. in both black and galvanized.

We will gladly quote.



REPUBLIC IRON AND STEEL COMPANY

Sales Offices:

General Offices:

Youngstown, Ohio

Republic Bldg.

Chicago

Birmingham New York Cleveland

Cincinnati

Philadelphia St. Louis Detroit

Dallas San Francisco Pittsburgh

EMERSON STEAM PUMPS

EMERSON FOOT VALVES AND STRAINERS

For Contractors, Mines, Quarries, Cofferdams, and all Rough and Ready Service. Immediate Deliveries

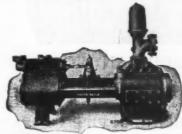
The Emerson Pump and Valve Co., Inc. ALEXANDRIA, VA.

DAVIS FOUNDRY & MACHINE WORKS

ROME, GEORGIA

Manufac urers of The Davis Turbine Water Wheel, Vertical and Horizontal, Shafting, Pulleys, Gearing, Etc. GENERAL FOUNDRY AND MACHINE WORK

Smith-Vaile Pumps



Duplex Steam-Triplex Power-Centrifugal Platt Iron Works Dayton, Ohio

Hammond-Byrd Iron Co.

1707-1718 American Trust Bldg., Birmingham, Ala. 1328 Peoples Gas Bldg., Chicago, Ill.

Soil Pipe and Fittings, Cast Iron Water and Gas Pipe and Fittings, Merchant Bar Iron, Rivets, By-Product Foundry Coke, Nut Coke, Blacksmith Coal, Shelby Charcoal Pig-Iron, Standard Alabama Pig-

WE HAVE BUILT

3700 OF THESE PUMPS IN 37 YEARS



Fig. 122

12 x 10 x 18" HORIZONTAL DUPLEX PISTON

The largest refining and pipe line companies in the world have standardized on this pump wherever possible; especially where the job is volume rather than high pressure.

On suction lines, in drain pits, as transfer and tank pumps where the pressure does not run above 125 lbs. this pump is without a peer. Furnished with any standard valve service, and fitted to suit conditions and material to be pumped.

Full data on request.

NATIONAL TRANSIT Pump & Machine Co.

OIL CITY, PA.

District Offices: New York Philadelphia Cleveland Houston Denver

Pittsburgh Kansas City

Baltimore Representative:

MORTON McI. DUKEHART Baltimore, Md.

MCGOWAN DUPLEX STEAM AND POWER DRIVEN PUMPS THE JOHN H. MCGOWAN CO.

CINCINNATI, OHIO, U.S.A.

Pennsylvania Pumps and compressors

Pump & Compressor Co.

RoTURBo CENTRIFUGAL

Manistee Iron Works Co., Manistee, Michigan

Nove

TAYLOR'S SPIRAL RIVETED PIPE

TAYLOR'S SPIRAL RIVETED PIPE is furnished with FORGED STEEL FLANGES attached. These flanges expand evenly with the pipe, and cannot be broken by any possible condition that may arise in the piping system.

SHEET STEEL FITTINGS are made to your special designs to meet the most unusual conditions, eliminating heavy castings, and making the piping system wrought steel throughout.

AMERICAN SPIRAL PIPE WORKS

MAIN OFFICE AND WORKS P. O. Box 485, Chicago

New York Office 50 Church Street



STRONG AND WILL NOT RUST

MICHIGAN WOOD PIPE

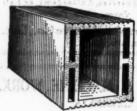
Specified by leading engineers everywhere. It is economical, both in laying and tipkeep. It will not rust or clog. Insist on Michigan Pipe all the time.

Write for a copy of the Michigan Book.

MICHIGAN PIPE COMPANY Madison Street BAY CITY, MICH.

CHATTANOOGA, TENN.: Robt. R. Nixon Co., 702 James Bldg. OKLAHOMA CITY, OKLA.: F. H. Loeffer, 105 W. 16th Street.

CLAY PRODUCTS OF SUPERIOR QUALITY.



For the last HALF CENTURY we have been the largest Manufacturers in the South of Vitrified Sewer Pipe, Vitrified Highway Culvert Pipe, Segment Blocka, Hollow Tile, Septic Tanks, Flue Lining, Wall Coping, Tile Silos, Drain Tile, Chimpey Tons. Silos, Dra ney Tops.

Ask for free booklets and prices.

CHATTANOOGA SEWER PIPE WORKS CHATTANOOGA, TENN.



STANDARD WOOD PIPE

MORE DURABLE AND ECONOMICAL

Write for catalogue for full in

STANDARD WOOD PIPE COMPANY - - WILLIAMSPORT, PA.

SALT SEWER AND CULVERT PIPE

Wall Coping, Drain Tile, Flue Lining, Chimney Tops, Hollow Tile, Fire Proofing, Vitrified Brick, Fire Brick

BANNON'S PATENT LIDDED PIPE FOR STEAM CONDUITS

BANNON PIPE CO.

LOUISVILLE, KY.



Save 25% to 50% by using Wyckoff Wood Pipe

A. WYCKOFF & SON CO., ELMIRA, N. Y.

Branches: SCRANTON, PA., Valley Supply Co., Coal Exch. Bldg.

CAST IRON ~AND FITTINGS ~

American Cast Iron Pipe Company

NO CAULKING

Used throughout the country for water supply, fire protection, sewage disposal, gas lines, etc.

THE CENTRAL FOUNDRY COMPANY

New York, Chicago, Birmingham, Dallas, San Franci

GLAMORGAN PIPE & FOUNDRY CO. LYNCHBURG, VA.

GENERAL FOUNDERS AND MACHINISTS Manufacturers of

CAST IRON PIPE

For Water and Gas, Flange Pipe and Fittings

RIVETED STEEL PIPE

d all classes of Steel Plate Construction for the Iron and Steel Industry.

PETROLEUM IRON WORKS CO.

SHARON, PENNSYLVANIA

National Cast Iron Pipe Company BIRMINGHAM, ALA.

Manufacturers of

CAST-IRON Water and Gas
Pipe and Fittings, Flanged
Pipe, Flanged Fittings, and
General Castings

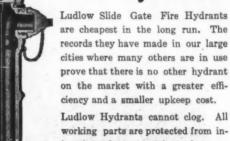
Foundries and Home Office: Birmingham, Alabama

SALES OFFICES:

122 So. Michigan Ave., Chicago, Ill.
No. 903 Commerce Building Kansas City. Mo.

LUDLOW

Fire Hydrants



working parts are protected from injury by gritty or cutting substances passing through the hydrant. All parts can be removed without digging up the hydrant. Gate-locking device prevents street from being flooded should the standpipe be broken.

Southern Representative:
WM. F. WILCOX
American Trust Bldg., Birmingham, Ala.

The Ludlow Valve Mfg. Co.

Branch Offices:

Chicago Philadelphia Pittsbu

Pittsburgh Kansas City

"UNIVERSAL" SEPTIC TANKS

solve the sewerage disposal problem in unsewered communities. Can be used with or without running water. Logical installation for rural schools, suburban homes, mine and industrial villages. CONCRETE PIPE—shipped from factory or made on the job. Concrete Pipe MOLDS—we give you benefit of our experience.

Ask for catalog.

UNIVERSAL CONCRETE PRODUCTS CO.
NEW MARTINSVILLE, W. VA.



SEPTIK TANK CO.

Manufacturers and Engineers SEPTIK TANKS AND SEWAGE DISPOSAL PLANTS

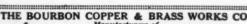
Wilmington, N. C.

MATHEWS FIRE HYDRANTS

Mathews Compression Type Fire Hydrants were the pioneer Hydrants in the South, and today, after more than fifty years, continue to hold first place in the Water Works Field:

REASON? Correctness of design, quality of material and workmanship.

R. D. WOOD & CO. 400 CHESTNUT STREET PHILADELPHIA, U. S. A.





Water Works and Fire Department Supplies and Extension Valve Boxes Long Distance Phone, Canal 3297 618 and 620 E. Front Street CINCINNATI. OHIO



JOINTITE-FILTITE

PERMANENT WATERTIGHT SEWER PIPE JOINT COMPOUNDS

Also Miller Flush Tank Siphons, Automatic Sewage Ejectors, Centrifugal Pump Outfits. Sewage Disposal Apparatus.

PACIFIC FLUSH-TANK CO.

CHICAGO Write nearest office for catalog interesed in. NEW YORK

COLUMBIAN IRON WORKS

CHATTANOOGA, TENN.

MANUFACTURERS OF

Fire Hydrants, Valves, Valve Boxes, Sluice Gates, Meter Boxes, Water-Works Supplies

ALSO MUNICIPAL AND BUILDING CASTINGS

Estimates Promptly Furnished

New Orleans Representative:

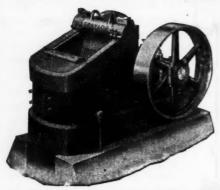
J. S. BARELLI

612 Godchaux Bldg.



ENDURINGLY EFFICIENT

TRAYLOR **BULLDOG JAW CRUSHER**



FEATURING:_

Commonsense Pitman Frictionless Tog. gle System Self-Aligning Eccentric Shaft Bearings Scientifically Reinforced Frame These, combined with general Sturdiness and accessibility make the Bulldog the Greatest Jaw Crusher.

You Should have a Copy of Bulletin 99M.

TRAYLOR ENGINEERING & MANUFACTURING COMPANY ALLENTOWN, PENNA.

NEW YORK 30 Church St.

NEW ORLEANS 1215 New Hibernia Bank Bldg.

PITTSBURGH 1133 Fulton Bldg.

CHICAGO 1414 Fisher Bldg. SALT LAKE CITY 111 Dooly Building LOS ANGELES Citizens Nat. Bank Bldg.

TIMMINS, ONT., CAN. Moore Block

Truck and Tractor Division, Cornwells, Penna.

EXPORT DEPARTMENT, 104 Pearl St., New York City. Cable Address "Forsaltra"

International Machy. Co. SANTIAGO, CHILE

W. R. Grace & Co. LIMA, PERU

International Machy. Co. RIO DE JANEIRO, BRAZIL

Pulverizing Machinery Equipped with Air-Separation for the Fine Grinding of All Dry Materials to a Powder



We have perfected the Air-Separation principle, which takes the place of your expensive screening and bolting machinery. This Air-Separation is applied direct to the pulverizing mills, so that as fast as the material is reduced to a powder it is removed from the grinding chamber.

Air-Separation is more economical than screens for producing fine materials, and by applying it direct to the pulverizing mill you obtain the added advantage of a complete unit which takes one-inch material and delivers a finished powdered material to storage.

An investigation of these statements will lead you to send for our catalog and full informa-tion as to how the Raymond System can be applied to your grinding requirements.

Raymond Bros. Impact Pulverizer Co.

1304 N. BRANCH ST.

CHICAGO

Eastern Office 50 Church Street New York City

Western Office 1002 Washington Bldg. Los Angeles, Calif.



Buchanan Crushing Rolls

Used for reducing product from Jaw Crushers Crushing Plants complete in all details. C. G. BUCHANAN CO., Inc. 90 West St. New York, N. Y.

SINGLE ROLL CRUSHERS

MAKE VERY FEW FINES. CRUSH CLOSE TO SIZE DESIRED?

Capacity 10 to 250 Tons per Hour

Ore Washers, Ore Jigs, Screens, Elevators, Etc.

McLANAHAN-STONE MACHINE CO., - HOLLIDAYSBURG, PA.



Fertilizer Grinders

Bones, fish scrap, tankage, oyster shells, anything that requires grinding can be reduced with Williams Patented Grinders. The Williams line includes crushers for coal, clay, stone—shredders for bark, wood, rosts—grinders for alfalfa, oats, snap corn and other feeds. Hegardles of what you have to crush, grind or shred lay your problem before the Williams Engineering Dev.

Williams Patent Crusher & Pulverizer Co. 811 Montgomery Street, St. Louis, Mo.

Chicago New York San Francisco 37 W. Van Buron St. 15 Park Row 67 Second St.

PATENT CRUSHERS GRINDERS SHREDDERS

For the same reason that you read Manufacturers Record

Where Used?

Where Used?

Bulletins describe the wide range of application of magnetic separation in mines and smelters, in abrasive manufacturing and reclaiming plants. In founding manufacturing plants, ore testing laboratories, and for rubber reclaiming, fertilizers and glues, drugs and chemicals, charcoal, potteries and china, coal dust, grain elevators, cattle and poultry foods, four, chickory, crucible clay, garbage reclaiming, cement and grysum, talo, glass, carbon and batteries, amunition, celluloid, tanneries, paper and pulp, gas mantles, beet and cane sugar, vegetable oil and for many miscellaneous operations.

Branch Offices

NEW YORK: 52 Vanderbilt Ave. RICHMOND: 1905 E. Main St. PITTSBURGH: 1522 Oliver Bldg. LOUIS: 1004 ederal Reserve Bank Bldg. EL PASO, TEXAS: First National Bank Bldg.

irst ink Bldg

YOU seek the advice and opinions of other men with problems like your own-that is why you read this magazine. Ask the advice of the Dings engineering staff for the same reason. In making 3,000 highly successful installations of magnetic separators, Dings engineers have probably solved problems exactly like your own. will back their recommendations with actual figures and laboratory reports; and this service is given without obligation!

The money making applications of Dings Magnetic Separators are almost countless. Pulley type separators protect crushing and grinding machinery from the damaging effects of the trampiron that is always found in conveyed material. Other types of separators aron that is always found in conveyed material. Other types of separators are used for freeing various materials of iron and other magnetic materials; for reclaiming iron in iron foundries; for separating brass from iron in foundries and shops; for reducing minerals in mining and in chemical processes—and many other uses suggested by the list opposite.

Can you afford not to investigate?

Magnetic Separator Co. - Specialists in

Separation

BIRMINGHAM: 848 624 Smith St.

ROTARY DRYERS

Especially suitable for drying all kinds of GRANULAR MATERIAL

HERSEY MANUFACTURING CO., South Boston, Mass.

lutomatic

erican Process Co., 68 William St., NEW YORK

DIGESTERS, ROTARY

DIRECT HEAT DRYERS STEAM JACKETED

CONTINUOUS STEEL SCREW PRESSES

EDW. RENNEBURG & SONS COMPANY BALTIMORE, MD.

L. K. CHKISTIE COMPANY - Pittsburgh, Pa.
Consulting & Contracting Engineers



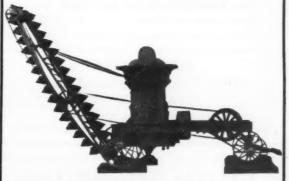
Everybody's Happy

By crushing, screening and storing rock obtained from nearby fields during the past winter, the Highways Improvement Company of South Bend, Indiana, secured the material for a six mile contract much cheaper than if they had had it shipped in, and at the same time kept their organization together and got rid of field stones and made money for the farmers in the district where the road was built.

A survey of the farms along the road was made after the contract was awarded and it was decided that enough stone could be secured from the fields to make it pay to put in a portable crushing and screening plant. The plant was set up at the middle point of the new road, and stone hauled in by farmers from within a radius of four miles.

Crushing and screening reduced the stone to four sizes ranging from dust to four inches. The several sizes were stored in separate piles more than twenty feet high by means of the conveyor, so little ground space was required and the material was in shape to be reclaimed quickly when taken out for the road.

Catalog 29-M tells all about the No. 3 Austin Portable Gyratory Crushing and Screening Plant that helped to make this such a profitable venture. Write for your copy now.



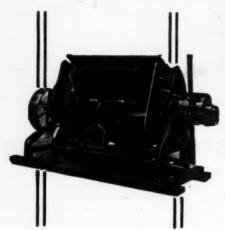
Austin Manufacturing Co.

NEW YORK

CHICAGO

SAN FRANCISCO

CUTS OUT THE GUESS WORK



The BLYSTONE is of the open-drum type and you are not obliged to wait until the materials are discharged to tell the condition of the mix. Guess work is eliminated.

The BLYSTONE is guaranteed to make as thorough a mix of dry or semi-wet materials as when a great deal of water has been added.

Any mixer will wear out, but the BLY-STONE will wear longer than any other.

BLYSTONE MANUFACTURING COMPANY

2-20 RECORD STREET

CAMBRIDGE SPRINGS, PENN.

L. & P. MANUFACTURING COMPANY, Niagara Falls, Ont.

Manufacturers and Distributors for Canada.

CLAY WORKING MACHINERY For Brick, Tile and Block, from smallest to large at capacity. Full line equipment, Write for catalogue. J. C. STEELE & SONS STATESVILLE, N. C.

BRICK MACHINERY

BRICK YARD SUPPLIES

THE FERNHOLTZ BRICK MACHINERY CO.

Boyle and Vandeventer Avenues

ST. LOUIS. MO.

SLUICE GATES

Shear, Flap and Butterfly Valves FLEXIBLE JOINTS

COLDWELL-WILCOX COMPANY

2 River Street

NEWBURGH, N. Y.

FIRE CLAY SEWER PIPE, FLUE LINERS and WALL COPING

Write for Catalogue and Discounts

Owensboro Sewer Pipe Co. Owensboro, Ky.

Brick, Tile and Fire-Proofing Machinery

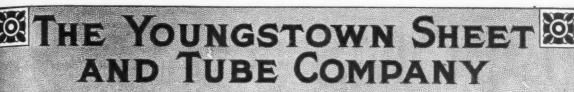


Union Brick and Hollow-ware Machine

An Auger Machine and Pug Mill in one construction—less expensive to install and more economical to operate. A positive forced feed into the auger obtainable with no other type of machine.

We build Union Machines, separate Auger Machines, Automatic and Hand-power Cutters, Pug Mills, Crushers, Hoists, etc., and can furnish everything necessary for completely equipping a modern building brick, paving brick, fire brick, drain tile, hollow block, chemical tile, er fire-proofing plant.

E. M. FREESE & COMPANY
GALION, OHIO



Youngstown, Ohio.

HE DURABILITY OF STEEL SHEETS is of tremendous importance, especially when they are used in localities in which the atmosphere is contaminated by smoke and gases, as is the case in all industrial centers.

YOUNGSTOWN COPPEROID STEEL SHEETS

are the most durable material of this kind yet produced at anything like the cost of ordinary steel. They are superior in point of durability to many special sheets sold at a much higher price. These are not mere claims; they are proven facts. Users of steel sheets who desire further information on this important subject, are invited to communicate with us direct, or with any of the District Sales Offices named below.

THE YOUNGSTOWN SHEET & TUBE COMPANY YOUNGSTOWN, OHIO

DISTRICT SALES OFFICES

BOSTON—120 Franklin St. New YORK—30 Church St. PHILADELPHIA—Pennsylvania Bldg. ATLANTA—Healey Bldg.

PITTSBURGH—Oliver Bldg.
CLEVELAND—Leader-News Bldg.
DETROIT—Dime Savings Bank Bldg.
CHICAGO—McCormick Bldg.
St. Louis—1139 Olive St.

DENVER—First Nat'l Bank Bldg. DALLAS—1401-2 Magnolia Bldg. SAN FRANCISCO—604 Mission St. SEATTLE—Central Bldg.

PIPE SHEETS - PLATES - BARS
WIRE-FENCING YOUNGSTOWN NAILS-HOODS
DURW YE COMMITTED TABLES

LOOMS

Automatic or Plain

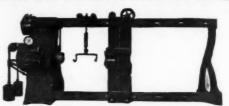
The Crompton & Knowles Loom Works is the largest builder of plain and fancy weaving machinery in the world.

We make looms to weave every known woven fabric, such as woolen, worsted, silk, gingham, towel, duck, tire fabric, cord fabric, blanket, tape, sisal, etc.

CROMPTON & KNOWLES LOOM WORKS WORCESTER, MASS.

Providence, R. I. Philadelphia, Pa. Paterson, N. J.
SOUTHERN REPRESENTATIVES:
ALEXANDER & GARSED, Charlotte, N. C.

MUCH LESS EXPENSIVE THAN YOU THINK



THE CALDWELL WHEEL PRESS

THE PRICE IS RIGHT 30 SIZES THE PRESS IS RIGHT
Most Popular Press on the Market. Ask Your Dealer
E. R. Caldwell & Company, Bradford, Pa.

Cotton Ginning Machinery

For all requirements of Ginners and Growers, Write to nearest Continental Sales Office for Catalog H.

CONTINENTAL GIN COMPANY

Atlanta, Ga.; Birmingham, Ala.: Dallas, Tex.; Memphis, Tenn.

THE CARDWELL MACHINE CO.

RICHMOND, VA., U. S. A.

WE MANUFACTURE OIL

OIL MILL MACHINERY

Cotton Seed, Linseed, Rape Seed, Olive, Peanut, Castor, Fish and Lard Oil, Hydraulic Baling Presses, Tobacco Machinery

Washington crossed the Delaware; another ancient warrior crossed the Rubicon; and

most of us are trying to put something across

If your problem is to convert the product of your mills and factories into ready cash with which to keep the wheels turning, you need Printing.

Direct advertising is your best method. Have us put that across for you. We know how. Then when you are called upon to "cross the bar," your estate will be an honor to your memory.

WE GIVE SERVICE

Fleet-McGinley Company, Master Printers

South and Water Streets, Baltimore, Maryland

Davison Chemical Co.

ESTABLISHED 1832

Largest and Oldest Sulphuric Acid Plant in the United States

SULPHURIC ACID

ALL GRADES

Also Manufacturers of

Acid Phosphate

OFFICERS:

C.	WII	BUI	R MI	LLEI	2		Pr	esident
GE	ORG	EV	V. DA	VISO	N	v	ice-Pr	esident
E.	B.	MIL	LER.			v	ice-Pr	esident
W.	D.	HUN	TING	TON		v	ice-Pr	esident
J.	R. V	VILS	ON.		. Secy.	and	Asst.	Treas.

Main Office—Garrett Building BALTIMORE, MD.

Works-Curtis Bay, Md.
Branch Office-2316 Equitable Bldg., New York

FREEPORT Sulphur Company

LOCATION OF MINES
Freeport, Texas, Mouth of Brazos River

NEW YORK OFFICE 61 Broadway

SELLING AGENTS
PARSONS & PETIT, 63 Beaver Street, New York

Miners and shippers crude sulphur in carloads or shiploads. Guaranteed ninety-nine and onehalf per cent. pure.

Mines located at Tidewater on the Gulf of Mexico. Excellent facilities for prompt steamer loading. Complete service by rail.



A N ELECTRIC HOIST for you power lifting with its consequent economy in time and labor.

"Just the method we have long needed. We are moving and lifting our loads for less than we ever anticipated"—that's the consensus of opinion of the hundreds now using LiftAbouts.

A LiftAbout is low in first cost—made possible by standardized manufacture and quantity production. Its maintenance is negligible. Easily and quickly installed.

Incorporated in the *LiftAbout* are the same features that have made "Shepards" so well known and so widely used.

 $\frac{1}{2}$ and 1 ton capacities for alternating or direct current.

Your first step toward low cost loadmoving and lifting will be a request for our bulletin. DO IT TODAY.

"Shepard" also builds electric cranes and hoists in capacities to 30 tons.

SHEPARD ELECTRIC CRANE & HOIST CO.

362 Schuyler Avenue - - - Montour Falls, N. Y.

Branches in Principal Cities

Member Electric Hoist Manufacturers' Assn.

SHEPARD ELECTRIC CRANES & HOISTS

DIRECTORY

ENGINEERS ARCHITECTS CONTRACTORS

CEUEMUSTS GEOLOGISTS CHEMICAL ENGINEERS

Detailed classification of specialized work undertaken by those having cards in this Directory will be found in Classified Index.

MILBURN, HEISTER & CO.

Architects

WASHINGTON, D. C.

O'BRIANT & YOST

Industrial Engineers designs, Construction, Appraisals, Modern Sawmills and Southern Industries. Randolph Bldg, MEMPHIS, TENN,

DANIEL B. LUTEN

Designing and Consulting Engineer Reinforced Concrete Bridges exclusively. Associate Engineers in each State.

INDIANAPOLIS, IND.

TURNER, C. A. P.

Consulting Engineer

M. Am. Soc. C. E. Reinforced Concrete and Structural Steel Bridges, Buildings and Manufacturing Plants.

627 First Ave. N. MINNEAPOLIS, MINN.

TURNER ARCHITECTURAL SERVICE

Advice on Materials, Methods, Costs and Design. Building Drawings and Specifications made by Specialists, Daylight Factories in Particular. Quantity Estimates made for the Trade. Central Sav. Bk. Bldg. BALTIMORE

J. G. REID

Mechanical Engineer

Mem. Am. Soc. of Mech. Engrs. MANUFACTURING PLANTS. 613 East 60th Street CHICAGO

DOULLUT & WILLIAMS CO., Inc.

Engineers and General Contractors Designing-Engineering-Construction

HOUSTON, TEX. TAMPICO, MEX.

E. T. ARCHER & CO.

Consulting Engineers.
Power Plants, Water-works.
Sewer Systems, Electric Lighting.
Street Paving and Roads.
Marchants Building.
New England Building
ANSAS CITY, MISSOURI

BLACK & VEATCH

Consulting Engineers
Water Supply, Water Purification, Sewerage, Sewage Disposal, Power Plants,
Valuations, Special Investigations and Reports
E. B. BLACK
Mutual Building
N. T. VEATCH, JR.
KANSAS CITY, MO.

OPHULS & HILL, Inc.

formerly
Ophuls, Hill & McCreery, Inc.
Consulting Engineers.
Ice Making and Refrigeration.
Investigations and Reports. 112-114 W. 42nd St., NEW YORK CITY

RICHARD K. MEADE & CO.

Chemical and Industrial Engineers and Contractors—Chemical, Cement, Lime, Fertilizer, Stone Crushing and Agricultural Limestone Plants Designed, Built, Improved and Operated. Reports on Industrial Propositions. Technical Research.
11 E. Fayette St. BALTIMORE, MD.

WILEY & WILSON

Consulting Engineers. Plans, Specifica-tions and Supervision, Steam and Elec-tric Power Plants, Central Heating Lighting and Mechanical Equipment for Colleges and other Institutions. Heating and Ventilation for School

LINCHBURG. VA

WILLIAM S. LEE

Mem. Am. Soc. C. E.
Consider Southern Power Co.
Consulting Engineer
Fith Ave. NEW YORK CLTY
CHARLOTTE, NORTH CAROLINA

THE DANIEL M. LUEHRS CO.

Mechanical, Electrical, Industrial, Air Conditioning Engineers. Chemical, Metallurgical Photomicro-graphical Laboratories, 118 St. Clair ave., N. Z. CLEVELAND, OHIO.

HUGH L. COOPER & CO.

General Hydrasile Engineering— Including the Design. Financing. Construction and Management of Hydro-Electric Power Plants. NEW YORK 101 Park Avenue

GILBERT C. WHITE, C. E.

M. Am. Soc. C. E. M. Am. Soc. M. E Consulting Engineer
Water-works, Streets and Power Plants DURHAM, N. C.

MARTIN J. LIDE

Consulting and Constructing Electrical and Machanical Engineer

BIRMINGHAM, ALA.

FREELAND, ROBERTS & CO.

Consulting Engineers

Concrete and Steel Structures

NASHVILLE, TENN.

GARDNER & HOWE

W. M. GARDNER.

Mem. Am. Soc. C. E.

H. N. Hows.

Assoc. Mem. Am. Soc. C. E.

Engineers—Designs, Estimates and Supervision; Concrete Bridges, Viaduets,
Buildings and other Structures.

Porter Bidg. MEMPHIS, TENN.

SOUTHEASTERN CONSTRUCTION COMPANY

Buildings & Bridges

Trust Building CHARLOTTE, N. C.

WALLACE & CRENSHAW

Enginees Designs, Estimate. Specifications, Superintendence of Reinforced Concrete, Mill Construction, Bridges, Highways, Sewerage, Paving, Wester Supply Empire Bldg. KNOXVILLE, TENN.

THE M. A. LONG CO.

NEW YORK

Engineers and Constructors

Horn & Horn Bldg. BALTIMORE, MD.

WASHINGTON D. C.

FRANCIS R. WELLER M.Am. Inst. E. E. M. Am. Soc. C. E.

Consulting Engineer-Hydro-Electric and Steam Power Plants, keports, Appraisals, Designs, Construc-tion, Properties Operated. 261-205 Mills Bldg.,

B. H. KLYCE M. Am. Soc. C. E. Engineer

Municipal, Highway, Structural, and Drainage Improvements. 720 Fourth and First National Bk. Bldg.

NASHVILLE, TENN.

DOW & SMITH

UW & SMITH

W. Dow, Ph.B.; F. P. Smith, Ph.B.

Mem. AM. Inst. Ch. Engra.

Mem. AM. Soc. Civ. Engra.

Mem. AM. Soc. Civ. Engra.

metcal Engineers—Consulting Pac
Engineers—Asphalt, Blumens, Par
Hydraulic, Cement, Engineering ing, Hydraulic, Cei Materials. 131-3 E. 23d Street NEW YORK

WILEY & COMPANY, Inc.

Analytical and Consulting Chemists anasyscos one Consusting Chemista-Exports on Fertilizer Materials, Coal, Greates, Foods, Drugs, Dairy Products, Chemical and Sacteriological Examina-tions of Water for Domestic and Manu-facturing Purposes, Calvert and Read Sts. BALTO. MD.

CLARK & KREBS

J. M. CLARK, Mem. A. I. M. E. C. E. KREDS, Mem. A. I. M. E. G. R. KREDS, J. W. MORGAN, Civil and Mining Engineers and Geologists—Coal, Oil, and Gas. Railroad and Municipal Engineering. CHARLESTON, W. VA.

HOCHSTADTER LABORATORIES

Consultants, Investigations, Chemical Analyses, Consultants, Technical Life of the Coal, Oll, Water, Paving Materials, Foodstuffs, Gelatin, Dairy Products, Confectionery, Drugs, Minerals, Textile Materials etc.

THE CAROLINA ENGINEERING CO.

Civil and Sanitary Engineers Sewers, Water-works, Paving, Highways, Railroads. WILMINGTON, N. C.

JOHN A. STEEL, JR.

Structural Engineers The design and erection of concrete and steel structures. Holston Bank Building, KNOXVILLE, TENN.

W. N. WILLIS

Surveys, Plans and Estimates for Sewage Disposal, Rallroads, Highways, Property Development, Power Develop-ment, Landscape Architecture, Superin-tending of Buildings and Concrete SPARTANBURG, S. C.

BERKELEY, W. N.

Analyses and Tests.
Cement, Concrete, Lime, Sand, Metals,
Minerals, Paints, Fuels, Oils, Waters,
Foods and Drugs.
Industrial Research by Expert Chemists
and Engineers. BALTIMORE, MD. 12 Clay St.

McDEVITT-FLEMING CO.

Engineers and Contractors—Specializing in Reinforced Concrete and Modern Building Construction. We solicit your Inquiries, Plans and Specifications. Office 409-11 First Nat'l Bank Bldg. CHATTANOOGA. TENNESSEE

ALBRIGHT & MEBUS

Municipal Engineers Town Planning, Street Paving, Sewerage and Sewage Treatment. Investigations. Reports and Valuations, 1502 Locust St., PHILADELPHIA, PA.

CLARK A. LUTER

Analytical and Consulting Chemists. Analysis of minerals, ores, water, fertilizers, oils, food products, glass and pottery materials. 17 S. Gay St. BALTIMORE, MD.

HERMANN EISERT

Consulting Engineer—Mechanical Equip-ment of Private, Public and Industrial Buildings. Manufacturing Establish-ments and Power Plants. 601 Hoffman Bldg

BALTO., MD. 11 E. Lexington St.

FROEHLING & ROBERTSON

Richmond Testing Laboratory:
Richmond Testing Laboratory:
Chemists and Economic Geologists—
Analyses of all kinds. Waters and
fertilizers specialties. Standard Cadefect the Charles of the Control of the Control
Mineral Expanding the Control
Mineral Expanding the Control
Size Franklin St. RICHMOND. VA.

O. OLSON

O. OLSON
Consulting, Designing and Supervising Engineer, Certified Member A. A. E. Reinforced Concrete. Modern Mills and Machinery for Southern Industries. Severand Drainage Investigation. Valuations and Reports. Buy. Sell and Trade Industrial Plants, Timberlands. Etc. 8 Belwin Bldg. JACKSONVII.LE., Fi.A.

E. S. DRAPER

Landscape Architect and City Planner Member of American Society of Landscape Architects.

CHARLOTTE, N. C.

CHARLES T. MAIN

Member A. S. M. E.

Testile Mills-Water-power Develop-

200 Devonshire Street BOSTON

Howard N. Eavenson & Associates

Mining Engineers

Examination and reports on coal properties—design, construction and electrication of coal plants—plans for concentrated mining systems—improvement of operating properties—valuations.

1392 Union Areade Building.

PITTSBURGH, PA.

CANAL CONSTRUCTION COMPANY

Drainage and Levee Contractors. 189 W. Madison St. CHICAGO, ILL. McCall Bldg. MEMPHIS, TENN.

GREINER & COMPANY, J. E. sulting Engineers

Design, Construction, Investigation, Advisory Services—Bridges, Docks, Plers, Warehouses and other Engineering Structures. 403 Fulton Bldg. PITTSBURGH, PA. Lexington Bldg. PALTIMORE, MO.

M. O. & W. ENGINEERING CORP'N

Civil, Electrical, Mechanical and Mining Service.

NORTON, VIRGINIA

MeWILLIAMS COMPANY, Inc.

Drainage and Leves Contractors.

Exchange Bldg. MEMPHIS. TENN.

F. K. ASHWORTH

Civil Engineer Muncipal, Structural and Drainage Improvements, Town Planning, Reports on Flarida Projects. Columbia Bldg., MIAMI, FLA.

N. C. McGINNIS & COMPANY

Land Drainage and Canal Construction DEALERS IN DRAINAGE BONDS 1764-5 Exchange Bldg. MEMPHIS, TENN.

J. A. FOUILHOUX

Mem. Am. Soc. C. E.
Mem. Am. Soc. E. & V. E.
Architect and Concutting Engineer
Mill, Reinforced Concrete and Steel
Buildings and Factories 7 West 42nd St. NEW YORK CITY

2.

DIRECTORY

ARCHITECTS ENGINEERS CONTRACTORS

CHEMISTS GEOLOGISTS CHEMICAL ENGINEERS

Detailed classification of specialized work undertaken by those having cards in this Directory will be found in Classified Index.

Ford. Bacon & Pavis

Incorporated

Business Established 1804 115 Broadway, New York

Philadelphia Chicago

San Francisco

THE J. G. WHITE ENGINEERING CORPORATION

Engineers-Contractors

48 Exchange Place

NEW YORK

SCOFIELD ENGINEERING COMPANY

Consulting, Designing and Supervising Engineers TEXTILE-MECHANICAL-ELECTRICAL-CIVIL

Commercial Trust Building

PHILADELPHIA

DAY AND ZIMMERMANN, INC. ENGINEERS

CHICAGO

ENGINEERING - CONSTRUCTION - REPORTS
MANAGEMENT - VALUATIONS

W. D. MOUNT, M. E.

Member A. S. M. E. and A. C. S.

Consulting Mechanical and Chemical Engineer

Expert in Alkali Manufacturing and Plant Design, Limekiin, Continuous Continuous Caury Filters, Twenty-four years' practical operating experience, People's National Bank Bldg.

W. A. Young, President GEO. S. Jones, Vice-President R. H. Jones, Sec'y and Treas,

CORNELL-YOUNG COMPANY

INCORPORATED

General Contractors

MACON

GEORGIA

TUCKER & LAXTON

Contracting Engineers

Filters, Concrete Work, Bydro-Electric and Steam Electric Construction. CHARLOTTE NORTH CAROLINA

GEORGE B. HILLS CO.

Successors in the South to Isham Randolph & Co. Drainage, Docks and Terminals, and Structural Design Associated: Mr. Wm. O. Sparklin, M. A. I. A. rnett Building JACKSONVILLE, FLA. Suite 36, Barnett Building

W. A. SANDERS

SANDERS & SWEENY

Consulting Engineers

ANDERSON

Civil—Mechanical—Electrical—Industrial
TEXTILE ENGINEERING A SPECIALTY SOUTH CAROLINA

WALTER A. ALLISON

Consulting Engineer—Specialist in the design, construction and supervision of Gas Properties, Reports, Appraisals, Rate Development.

403 Wister Street. PHILADELPHIA

S. R. BATSON

S. R. BAISUN

Civil Engineer

Member of Federal Highway Council.
State Highway Com. of Alabama.
Highway Engr. of Jefferson County 12 yrs.
Consulting Engineer for Bessemer, Ala.
120 Jefferson County Bank Building

BIRMINGHAM. ALA.

TRI-STATE BLUE PRINT & SUPPLY CO. Blue Prints-Supplies

All kinds of prints to 54" in width and any length.

Mail orders given prompt attention. 149 Madison Ave., MEMPHIS, TENN.

HUTTON & SCHREFFLER

Architectural Engineers. Engineering Service to Architects; Design and Supervision of Reinforced Concrete and Steel Structures; Warehouses and Industrial Buildings.

RALEIGH, N. C.

PARSONS, KLAPP, BRINCKERHOFF & DOUGLAS

H. M. Brinckerhoff W. J. Douglas

Wm. Barclay Parsons Engineers DESIGNING, ESTIMATES, SUPERVISION, APPRAISALS
EXAMINATIONS AND REPORTS.

PARKLAP CONSTRUCTION CORPORATION

Hydro-Electric Plants, Industrial Plants, Factory Buildings. CLEVELAND 743 Hanna Building

DWIGHT P. ROBINSON & COMPANY

Engineers and Constructors of Industrial Plants, Power Plants, Bailroad Work

125 East 46th Street, NEW YORK
YOUNGSTOWN DALLA
LES MONTREAL RIO D

CHICAGO LOS ANGELES

DALLAS RIO DE JANEIRO

BYLLESBY ENGINEERING & MANAGEMENT CORP.

208 S. La Salle Street

CHICAGO

NEW YORK

TACOMA

WE HAVE NOTHING TO SELL BUT OUR SERVICES

W. E. BIGGS ENGINEERING COMPANY

Designing, Consulting and Construction Engineers MECHANICAL-ELECTRICAL-INDUSTRIAL Holston Bank Building KNOXVILLE, TENN.

Robert W. Hum Jno. J. Cone

ROBERT W. HUNT & COMPANY

INSPECTION AND TESTS Steel and Cement for Bridges and Buildings, Railroad Material and Equipment Chemical, Physical and Cement Laboratories, Treated and Untreated Lumber. New York New Orleans Pittsburgh

CRAWFORD & SLATEN

Pipe Fitters, Engineers & Contractors

Automatic Sprinkler Systems

Automatic Sprinkler Systems
Mill Heating, Engine and Boller Connections.

ATLANTA. GA.

901 Austell Bldg.

GODFREY M. S. TAIT

American Society of Mechanical Engineers
American Institute Mining and Metallurgical Engineers
American Association of Engineers
American Association of Engineers
Valuations and Appraisals

Reports on Coal Properties prepared for the guidance of Investors and Bankers.
808 18th St., N. W. Telephone Main 1738 WASHINGTON, D.C.

HUNTINGTON & GUERRY, Inc.

Contractors

Electric Power and Lighting Installations for Industrial Plants Textile Mills a Specialty,



GREENVILLE SOUTH CAROLINA

THE SMITH COMPANY

J. H. BULL

ATLANTA

Industrial Builders JULIAN P. SMITH

W. R. WILLIAMS A. M. Am. Soc. C. E.

We Build All Classes of Industrial Plants, Water Systems, Brick and Concrete Structures

Reliability-Speed-Accuracy

30 Third Ave. N. W.

BIRMINGHAM, ALA.

THE J. B. McCRARY COMPANY

Engineers

GEORGIA

MUNICIPAL IMPROVEMENTS

We design and construct Water-works, Electric-light and Sewer Systems-Paving and Road Work.

Nov

DIRECTORY

ARCHITECTS **ENGINEERS** CONTRACTORS

CHEMISTS GEOLOGISTS CHEMICAL ENGINEERS

Detailed classification of specialized work undertaken by those having cards in this Directory will be found in Classified Index.

NORMAN ALAN HILL

Industrial Counsel

JNO. D. EDWARDS Accountant and Auditor 405 ST. PAUL PLACE

R. T. WATTS, E. E. Consulting Engineer BALTIMORE, MD.

MANAGEMENT ENGINEERS

SALES FINANCE PRODUCTION

Associate Connections Philadelphia

New York Chicago Pittsburgh

PARKES ENGINEERING CO.

Designing and Supervising Engineers

WATER-WORKS, SEWERS, PAVEMENTS, ROADS, DRAINAGE, LEVEES. CITIZENS BANK BUILDING PINE BLUFF, ARKANSAS.

SPIKER & LOSE **ENGINEERS**

510-20 Forsyth Building Atlanta, Georgia Reports, Appraisals, complete plans and or supervision on Industrial Plants, Bydro-Electric Projects, Warehouses, Bridges and Viaducts,

CONSULTANTS TO ARCHITECTS
on Office, Hotel, Theatre, Auditorium, Store and Public Buildings.

JAMES POSEY

Mem. A. S. M. E.

Consulting Engineer

Power Plants, Refrigerating, Electric Plants, Heating, Ventilating, Lighting, Wiring, Elevators, Conveyors, Plumbing, Sewerage Disposal, Sprinkler Equipment, Fire Protection, Water Works, Factory and Manufacturing Plants II E. Pleasant St.

THE CONCRETE STEEL BRIDGE CO.

Clarksburg, W. Va.

REINFORCED CONCRETE

Coal Mining Plants

Buildings Coal KNOXVILLE, TENN. HUNTINGTON, W. VA. JACKSON, MISS.

THE AMERICAN APPRAISAL COMPANY

Authoritative Valuations and Reports on all Types of Properties.

BALTIMORE-NEW ORLEANS-ST. LOUIS-ATLANTA CINCINNATI-MILWAUKEE-NEW YORK

THE S. R. SMYTHE COMPANY

Engineers PITTSBURGH, PA. Steel Works, Rolling Mills, Blast Furnaces, Hot Blast Stores, Furnaces for All Purposes. Operated with Producer Gas, Natural Gas, Oll, or Pulverized Coal. Coke Ovens. Gas Producers, Hand-operated or Mechanical. The Valce of the Era: SCHILD SLIDING GAS AND AIR-REVERSING VALVES PITTSBURGH

PITTSBURGH TESTING LABORATORY Inspecting Engineers and Chemists

Inspection of Cement, Crossoted Timber, Cast-iron Pipe, Ralitoad E.
Machinery and Road Materials, Chemical Analyses and Physica Inspection of Bituminous Pavement Construction.

PITTSBURGH SIRMINGHAM DALLAS (CLEVELAND NEW YORK

MEES & MEES

Consulting Engineers and Industrial Architects

Hydro-electric Derelooments, Power Plants, Factories and Industrial Plants, Bailways, Bridges, Municipal Improvements and Highway Engineering, Surveys, Reports, Designs, Supervision of Construction.

Third Floor Kinney Building CHARLOTTE, N. C.

MORSE AGRICULTURAL SERVICE

Examinations and Reports on Lands, Farms, Plantations, Ranches-Plana, Estimates, Management-A Service for Farm Owners Who Wish Larger Profits. NEW ORLEANS NEW YORK 1412 Hibernia Building

F. E. MARKEL

Mechanical Engineer

Consulting, Designing and Supervising Mechanical Equipment of Buildings
Heating and Ventilating—Steam Power Plants — Electrical Layouts—
Plumbing and Sanitary Systems — Water Supply — Refrigeration
Chemical and Special Piping.

217 Rhodes Building ATLANTA. GA



NON-METALLIC MINERALS: Clays—Shales—Kaolin—Spars—Limestone—Gravels—Cements,

Analysis—Investigations—Reports on Properties—Plant Design— Engineering—Counsel,

327 S. LaSalle St.,

J. B. MCCALLA

B. C. BARKER

J. E. WILLARD

J. B. McCALLA & CO.

Civil and Municipal Engineers

Reports, Surveys, Maps, Estimates, Designs, Street Paving, Concrete Plain and Reinforced Water Supply, Sewers and Sewage Disposal.

769 Market Street. KNOXVILLE, TENN.

FRASER, BRACE & COMPANY, Inc.

Contracting Engineers

Hydro-Electric Developments—Dams—Bridges—Power Plants—Industrial Plants-Railroacs—Difficult Foundations—Caissons—Docks. NEW YORK CITY

ROACH & STANSELL

Railroad & Levee Contractors

North Memphia Savings Bank Building

MEMPHIS. TENN.

GEORGE CONSTRUCTION CO., INC.

Contracting Engineers

UNDERGROUND CONDUITS AND CABLES PHILADELPHIA

E. A. BURROWS

Consulting, Designing and Contracting Engineer

Ice-Making and Refrigeration Plants and equipment constructed and financed Security Building CHICAGO



WALTER J. FUSTON

Structural Engineer

S. W. LIFE BLDG.

DALLAS

M. H. AVRAM & COMPANY, Inc.

Engineers-Industrial Managers Investigations and Reports

Design and Development of Product or Equipment Technical and Commercial Research

Management

NEW YORK CITY

950 Munsey Bldg WASHINGTON, D. C.

ARCHITECTS

ENGINEERS

CONTRACTORS

Your card on these pages will place you directly

before the active forces of the South

and Southwest

22.

INDUCED VENTILATION

SCHOEDINGER'S ROTARY SUCTION VENTILATORS

induce suction on the foul air in your plant from the power of passing winds.

They are well worth your investigation.



Also secure prices on Schoedinger's Universal Lock Joint Metal Ceilings, Kinnear & Gager Quad Lock Metal Ceilings, Underwriter's Fire Proof Metal Windows, Underwriter's Tin Clad Fire Doors.

F. O. SCHOEDINGER

Manufacturer and Distributer of Sheet Metal Products

COLUMBUS

GENERAL CONTRACTORS

Difficult Foundation Work **Underwater Construction** Waterwheel Installations

Power Plants

Buildings-industrial and commercial

Miscellaneous Construction

C. A. D. BAYLEY & COMPANY

INCORPORATED

ATLANTA, GA. Citizens and Southern Bank Building

NEW ORLEANS, LA. Interstate Bank Building



WE LOOK INTO THE EARTH By Use of Diamond Core Drills

We test foundations for buildings, bridges and dams. We prospect coal and mineral lands in any part of North and South America.

PENNSYLVANIA DRILLING CO-1812 W. Carson St., Pittsburgh, Pa.

MURPHY'S HOTEL Richmond, Va.

Virginia's largest and Richmond's most centrally located Hotel, Every car line in the City passes Murphy's. Rooms single and en suite.

Railroad tickets sold and baggage checked at Hotel.

Main Hotel and Grace Street Annex fireproof. Rates \$1.00 and Up

JAMES T. DISNEY, Manager

Baltimore's Newest and Largest Hotel

Located in the heart of the wholesale and retail sections.

Well lighted Sample Rooms. Attractive Cafeteria at Popular Prices. Beautifully decorated private dining rooms. Large Ball-room or Convention Hall, seating 500 people. Open Air Roof Garden (Open Season)

Every Room with private bath or shower Rooms at \$4.00 per Day and Up

The SOUTHERN HOTEL
Fireproof Modern Convenient

LIGHT AND REDWOOD STS. BALTIMORE, MD.



"IT'S YOUR ORDER, BECAUSE YOUR COMPANY HAS A PHOTOSTAT."

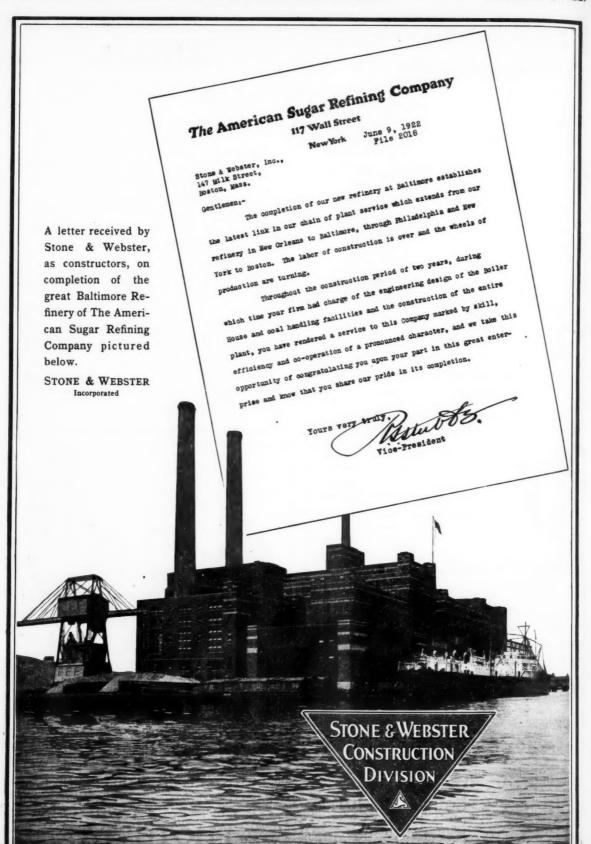
"This is a job where delivery is paramount. And, in every case, I have made it a point to find out what kind of equipment the bidder had in order to make good his promise. "Your company has a piece of equipment on which I have learned to rely. I know what the PHOTOSTAT is and what it can do. I know you will not have to lose any time tracing. You can make PHOTOSTAT copies and get started on your shop work right away. In other words you'll be days ahead and I also know that there can't be any mistakes in PHOTOSTAT copies.

"Yes, sir. You tell your chief he can thank the PHOTOSTAT for this order. I know you'll make delivery with that machine to help you."

PHOTOSTAT prints cost cents. Compare this with what it costs for a draftsman to make a tracing, a stenographer to copy a page, or an artist to reproduce a layout. The experience of many users, written in letter form, are contained in our booklet. "'A Good Word for the PHOTOSTAT". Write for your copy today.

PHOTOSTAT CORPORATION 295 STATE STREET ROCHESTER, N. Y.

88 Broad Street, Boston,
123 W. Madison Street, Chicago,
129 Leader Bldg., Cleveland,
7 Dey Street, New York City,
Executive Office: Providence, R. I.



Manufacturers Record

Exponent of America

NOVEMBER 2, 1922

Volume LXXXII	Table of	Contents Number 18
Do We Need More Immigr	ation?	Cover Page
EDITORIALS .		
Aeroplane Photographs velopments. United States Judge Co		The Way to National Upbuilding is by Develop- ing Great Waterway Transportation Oppor- tunities.
Reserve Bank's Bulld	ozing Methods.	South's Leadership in Sanitation.
Transportation Shortage	Hampering Business How Can It Be Reme-	Has Boll Weevil Problem Been Solved?
	Presidents Markham	Negro Cotton Growers Seeking Work Elsewhere.
Encouraging Lawlessness States Should Maintain	Their Right to Issue	How the War Finance Corporation Saved the Day.
Vestige of State Right	d Save About the Last	In Broader Industrial Development Lies the Prosperity of All Southern Interests,
Prohibition Work Abroad		A Boston Banker's View of Remarkable Re-
A German Firm's Effort		covery of the South.
Now England Cotton M		
New England Cotton M Hour Week Law.	inis Hampered by 45	Prohibition as Viewed in Australia.
Hour Week Law. Building \$500,000 Market is A Revelation of Sovietism.	NEWS A	RTICLES es
Building \$500,000 Market is A Revelation of Sovietism. Judge Gary Wants Another \$500,000 Industrial Training Organizing Communities to Much Activity in Southern B Sale of Bonds for Financing Year. Power Development of George Remarkable Series of Aerop Railway & Power Co.	NEWS An Norfolk Along New Lin Peace Conference and M School to Be Erected fo Fight Organized Crime. Southern Improvements O Gia Railway and Power C lane Views of the Proper	## RTICLES ### as a continuation
Building \$500,000 Market is A Revelation of Sovietism. Judge Gary Wants Another \$500,000 Industrial Training Organizing Communities to Much Activity in Southern B Sale of Bonds for Financing Year. Power Development of George Remarkable Series of Aerop Railway & Power Co.	NEWS An Norfolk Along New Lin Peace Conference and M School to Be Erected fo Fight Organized Crime. Southern Improvements O Gia Railway and Power C lane Views of the Proper	RTICLES es

Branch Offices: New York, 30 Church St.; Chicago, 11 South La Salle St.; Boston, 734 Old South Bldg.; St. Louis, 915 Olive St.; Washington, Whaley-Eaton Service, 456-459 Munsey Building.

SUBSCRIPTION RATES

\$6.50 a year (in advance); six months, \$3.50; three months. \$2.00 to United States, Mexico, Cuba, Porto Rico, Hawall and the Philippines. For Canada, add postage \$2 a year. For other foreign countries, add postage \$5.50 a year. Back numbers, if available and not over one month old. 20 cents each. From one month to six months old, 50 cents each; over six months old, 51 each.

In ordering change of address, give old as well as new address.

MEMBER ASSOCIATED BUSINESS PAPERS, INC., AND AUDIT BUREAU OF CIRCULATIONS.

NORTHROP LOOMS Trade-Mark, Reg. U. S. Pat. Off.

Make better goods and more of them with less than half the labor cost of weaving

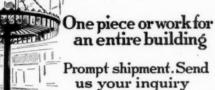
DRAPER CORPORATION

HOPEDALE MASSACHUSETTS

is in its element wherever there is extra heavy hoisting to be done. Send for Catalog BRODERICK & BASCOM ROPE CO. ST. LOUIS YELLOW

F-338

rnamental Iron and Wire Work



DOW CO. A TOWN LOUISVILLE . KY



Patented

McEvoy Wireless — Well Strainers

for Oil. Gas and Water Wells Safe—Efficient—Economical

Thousands of satisfied customers for 15 years. You can be one too.

Write for full information

J. H. McEvoy & Co. Houston Texas



ELECTRIC INDUSTRIAL TRUCKS

Over 200 Branches of Industry served by ELWELL-PARKER equipments today.

Lighten Labor - Speed Production - Increase Profits Catalog 1209



THE ELWELL-PARKER ELECTRIC CO. Cleveland, Ohio



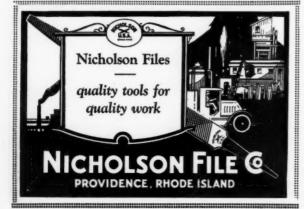


Dependable Wire Rope for All Purposes Is Made By

A. Leschen & Sons Rope Company

(Established 1857)

ST. LOUIS, MO.





Manufacturers Record

EXPONENT OF AMERICA

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

Trade-Name Registered in the U. S. Patent Office

Vol. LXXXII No. 18 WEEKLY.

BALTIMORE, NOVEMBER 2, 1922

SINGLE COPIES, 20 \$6.50 A YEAR

PUBLISHED EVERY THURSDAY BY THE

MANUFACTURERS RECORD PUBLISHING CO. Office: Manufacturers Record Building, Cor., Commerce and Water Sts.
BALTIMORE, MARYLAND

RICHARD H. EDMONDS, President FRANK GOULD, Vice-President

VICTOR H. POWER, Treas I. S. FIELD, Socretary

RICHARD H. EDMONDS, Editor

BRANCH OFFICES 11 So. La Salle St. NEW YORK, 30 Church St. 915 Olive St. BOSTON, 734 Old Sough Bidg. ASHINGTON (Whaley-Eaton Service), 456-459 Mussey Bidg.

SUBSCRIPTION RATES:

\$8,50 a year (in advance); six months, \$3,50; three months, \$2 to United States, Mexico, Cuba, Porto Rico, Hawaii and the Philippines. For Canada add postage \$2 a year. For other foreign countries add postage \$5.50 a year Back numbers, if available and not over one month old, 20 cents each, from one month to six months old, 50 cents each; over six months old, \$1 each, ln ordering change of address, give old as well as new address.

AEROPLANE PHOTOGRAPHS OF HYDRO-ELECTRIC DEVELOPMENTS.

TWO weeks ago the MANUFACTURERS RECORD published a Two weeks ago the blandraction of the boll story about the use of aeroplanes in destroying the boll weevil through the distribution of calcium arsenate. Following that we give today a remarkable series of photographs of hydro-electric developments in Georgia taken by an aeroplane at an altitude of 1500 to 5000 feet.

These two things are typical of the way in which the world is moving in the amazing achievements of science. One indicates how the cotton crop can probably be saved from the destructive power of the boll weevil; the other shows how the mountain streams and rivers of the South are being utilized for hydro-electric development which will turn the cotton mills that spin the South's cotton; and many other industries are more and more turning to electric power.

The aeroplane pictures of water power operations, which occupy five pages of this issue, are the best we have ever seen.

HOW TO SECURE NEW BUSINESS.

Wilmington Chamber of Commerce.

Wilmington, N. C., October 16.

Editor Manufacturers Record:

8

We are writing to express the great value your magazine is to us in the conduct of our office.

Each week we read same carefully and get from it a great many building and sales suggestions. We in turn refer these to our membership, especially those in the building supplies, contracting and mill supply classifications. These pointers have enabled our membership to secure good business at

We thought you would be interested to know just how aluable your splendid publication is along the lines we have mentioned above.

LOUIS T. MOORE.

UNITED STATES JUDGE COCHRAN ENIOINS FEDERAL RESERVE BANK'S BULL-DOZING

NOTHER expose of discreditable Federal Reserve Bank A NOTHER expose of discrediture.

A methods in dealing with a bank which refused to comply with demands that it remit payment for local checks at par is revealed in an opinion recently handed down by Judge A. M. J. Cochran, of the United States District Court at Catlettsburg, Ky., in the case of the Farmers & Merchants Bank of that place against the Federal Reserve Bank of Cleveland, O., and its agent for the collection of checks. Previous exposures of similar coercive actions on the part of Federal Reserve Banks and their agents were made in the cases of the American Bank & Trust Co. versus the Federal Reserve Bank of Atlanta, Ga., and in the case of the Brookings State Bank, of Brookings, Ore., against the Federal Reserve Bank of San Francisco, Calif.

In this particular instance at Catlettsburg the opinion of the court shows that the first agent of the Federal Reserve Bank in question acted in a particularly offensive manner according to the evidence, continuing to do so for some time and until he was indicted by the grand jury at Catlettsburg and charged with making and circulating statements derogatory to the Farmers & Merchants Bank there, contrary to the Kentucky laws, after which he left the place and never returned.

The outcome of the suit was that the court on October 14 granted a preliminary injunction restraining the Federal Reserve Bank from continuing to make collections of checks on the Catlettsburg institution by presenting them in bulk for payment in cash over the counter and from continuing to advertise that it would collect such checks free of charge, as well as from doing anything else of a coercive nature.

The Court's opinion says that H. A. Magee, traveling representative of the Federal Reserve Bank, first visited the Farmers & Merchants Bank and tried to persuade its officers to agree to remit payment for checks free of charge. When he found that he could not do this he said that the American Express Co. would be employed to collect the checks in cash, to uphold the principle of free collections, and, to quote from the opinion said:

"Plaintiff would be mighty glad to sign up before long as no bank could exist that did not; that the Federal Reserve System was like a mighty battleship coming up as it were from a smooth sea and all banks that did not affiliate with it could not stand its swells and must get in its wake for safety. and that in the next five years there would be no small banks."

If the people of this country want to know how the Federal Reserve System has sought to destroy state banks, here is a specific illustration for their study.

Notwithstanding this bull-dozing threat the local bank stood firm upon its rights and the express company was em-

N

tl

tl

19

C

al

us

in

eo

Ca

re

m

gh

ti

th

ployed to collect the checks received by the Federal Reserve Bank on the Catlettsburg Bank in question. The express company acted in this way for only a few weeks, from January 6 to February 26, 1920 when it refused to do so any longer, as it was too burdensome. Magee called now and then to see whether the spirit of the bank had been broken but found it had not. When the express company gave up the work he went to Catlettsburg and "for several days," says the court, "possibly until March 3, 1920, made the collections himself. Each day during this time he went to a drug store on the corner opposite plaintiff's bank, where there was a soda fountain, the most prominent place in the city, and remained there from three to five hours walking up and down in the store room and looking across the street at the bank as though he were on the watch for what was being done there. On that date he employed Frank K. Barbee, a resident of the city and night clerk in a hotel, to act as agent. He continued to act until March 23, 1920, when he surrendered the job and the defendant agent, Miss Mary B. McCall was employed."

"Whilst Barbee was acting as agent Magee was in Catlettsburg, the most of the time, instructing him and overseeing the performance of his duties. The place of instruction was the corner drug store heretofore referred to. Magee spread the checks upon a refreshment table in the front part of the store in a conspicuous place where those coming in and out of the store could readily see and hear what was going on, assorted and listed and endorsed them and explained to Barbee the details of presenting the checks at the counter and demanding payment in cash. * * * He stated to Barbee * * * that sooner or later the plaintiff would be forced to sign an agreement to clear all checks at par or that it would be forced out of business."

"After Miss McCall's employment Magee remained in Catlettsburg for some time, possibly until April 10, instructing her and overseeing the performance of her duties. The place of instruction and the manner thereof was exactly the same as in the case of Barbee. * * * Miss McCall was a maiden lady who had the respect of the people of Catlettsburg.

"Magee's manner, whilst in and about plaintiff's bank, as heretofore set forth, was domineering, dictatorial and boisterous. He sought opportunity to attract attention of those who might be in or near the bank by loud and quarrelsome conversation. He took occasion to create scenes and disturbances at times when there would be many customers in the lobby of the bank. At the time when he undertook to collect checks after the express company quit, the plaintiff suggested that it had not received any letter designating him as agent. He made a row about this, intimating that it was refusing to recognize his authority. Much disturbance was caused in the bank by the colloquy over this matter. During Barbee's agency he brought on a heated argument with the assistant cashier over a certain check."

While the express company was acting as agent the opinion also says that the plaintiff stamped on a great many of its bank checks the words "Payable in cash or exchange draft at the option of the Farmers & Merchants Bank of Catlettsburg, Ky." For awhile the Reserve Bank accepted checks so endorsed and accepted exchange drafts in payment for them; later it refused to accept them. Once Magee presented fourteen such checks, amounting to a total of \$573.80 and demanded and received as many separate drafts for them. Once Magee visited C. C. Magann, of Ashland, Ky., a neighboring city, and who was a depositor in the Catlettsburg bank, and told him, continues the opinion "that his check to the Ford Motor Co. for \$3756.72 on plaintiff had been presented and payment thereof refused, and exhibited a letter to him from the Cincinnati Branch Bank corroborating his statement. Magann immediately went to Catlettsburg in his automobile and ascertained that his check had been paid that day and that it had not been presented for payment before then, and payment thereof had never been refused."

Again, on another occasion according to the opinion, Magee visited O. H. Salyer, another of the plaintiff's depositors, and demanded to know why he had not filled out a certain check in a proper manner, stating that he had presented it for payment and could not get any money on it. He also visited F. H. Carpenter, another depositor, and inquired why his company permitted the bank to put such an endorsement on the check, stating that it was injurious to the credit of his company and that to save its credit he should do business with some other bank.

"After defendant bank refused to accept checks drawn on plaintiff bearing the endorsement as to payment in cash or exchange at plaintiff's option," says the court, "it did not content itself with returning the checks to the banks from whence they came, but took pains to write to the payees of the checks giving its reason for not accepting them. That was that the checks by reason of the endorsement were non-negotiable."

The court notes that an affidavit by Magee denies that he ever tried to coerce the plaintiff bank or that he ever uttered to anyone any statement derogatory to its reputation or its solvency, but other than these general statements that he made no denial as to his conduct.

"But how, "asks the court," is such conduct on Magee's part to be accounted for? It cannot be accounted for on any other basis than knowledge on his part of what defendant bank's purpose was in setting on foot the movement against plaintiff. It was begotten by such purpose and hence gives color to it. The showing made by plaintiff's affidavits as to the other particulars than Magee's conduct and as to his conduct except as stated, are uncontradicted."

As to the effect upon the bank at Catlettsburg by the Federal Reserve Bank's course of procedure, the court opinion says:

"It deprived it of income remittances to the extent of from \$800 to \$1000 a year. It required it to keep a greater cash reserve and therefore, affected its income from loans to a certain extent. It caused it to lose depositors. * * * The cashier's affidavit gives the names of seven depositors which plaintiff lost for this reason, and this statement is uncontradicted. And the movement, especially whilst Magee was at Catlettsburg, was calculated to cause plaintiff to lose depositors. The movement scandalized plaintiff in Catlettsburg and was calculated to injure its reputation and credit. What was going on was a matter of public notoriety. No attempt was made to keep it from the public. The effort was all the other way to bring it to the knowledge of the public. And the procedure could not help being humiliating to the plaintiff. * * *

"It does not follow that because the holder of a check has a right to present it to the bank upon which it is drawn for payment over the counter, that one has the right to seek to become the holder of all the checks drawn on a bank as they are drawn and then present them in a body for payment over the counter * * * Such a course of procedure is a kind of refined bank hold-up. * * * What then was the defendant bank's purpose in initiating this movement against the plaintiff and keeping it up for over a year and a half, i.e., until stopped from further doing so by the temporary restraining order. * * * Notwithstanding it was having its own way in conducting its business it was not willing that plaintiff should have its way in conducting its business. It desired to impose its will on plaintiff."

The shocking manner in which the agent Magee representing the Federal Reserve Bank acted in this case, as shown by the court, is in keeping with similar actions against banks in other sections where other Federal Reserve banks have been enjoined by the Federal Courts for such dastardly work. re

ree nd ck

ed

nis

nis

222

on

or

ot

of

111-

ed

its

he

rt

er

ff.

it.

er

pt

on

m

sh

he

ch

n-

as

ts-

it.

No

rt

he

ng

28

or

to

ey

er

nd

ıst

lf,

its

It

Transportation Shortage Hampering the Business Interests of the Country—How Can It Be Remedied?—Suggestions by Presidents Markham and Rea.

THE telegrams from railroad presidents in a recent issue about transportation facilities, and the statistics given showing how ton mileage has enormously increased without a corresponding increase in rolling stock, have attracted very wide attention from railroad men and from shippers. Mr. C. H. Markham, President of the Illinois Central Railroad, writes as follows:

"Your editorial beginning on page 55, October 19th issue, goes to the very vitals of the railway question in that it shows that the increases provided in railway facilities in former years have been decreasing gradually, while the ton mileage has been increasing steadily. Of course, this condition cannot continue to go on without frequently recurring losses to the business interests of the country. Under fair treatment at the hands of the public—such treatment as will justify large expenditures in additions and betterments, and will also restore the confidence of investors in railway securities—the railroads can supply unlimited transportation facilities. The whole question is up to the public. The public is responsible for the present transportation conditions.

"What the country needs are leaders among business men and farmers with vision to see that the business and agricultural interests must have ample railway transportation and with courage enough to tell the truth about the transnortation situation.

"I am discussing this subject somewhat at length in a speech which I am to deliver at the annual dinner of the Railway Business Association in New York, November 9. I will take pleasure in sending you a copy of that speech."

Bearing on this whole transportation question is a letter from Mr. Samuel Rea, President of the Pennsylvania System, in which he says:

"I desire to acknowledge receipt of your letter of October 19th, and I am indebted to you for a copy of this week's issue of your paper, and also for the intelligent effort you are making to put the railroad situation before the country.

"No progress can be made through complaints or pessimism-that does not appeal to the American people. Some means must be devised to provide a way of escape from established facts. If you will get from the Interstate Commerce Commission records the returns which the railroads have been allowed to earn on the cost of their property devoted to public use for a ten year period, or longer, and do your own reasoning as to what constructive raflroad transportation system could be provided on such returns, and what encouragement has been given to railroad managers and owners to raise the capital for modern railroads with ample facilities, a candid review of these facts will give you a grasp of the situation much better than anything I can say, and should also bring home to the business men the necessity for getting their shoulders to the wheel to insure fair returns to the railroads, which is the only basis whereby proper transportation facilities can be furnished the public. Otherwise the railroad investor may feel badly treated but the real burden must be borne by the business men themselves through the lack of adequate transportation facilities."

Among the telegrams from railroad presidents published by the Manufacturers Record two weeks ago were a number from the heads of several great railroad systems, which indicated that their roads were fully able to take care of the business problem. One of these telegrams was from Mr. R. E. Kelly, representative of the Executive Department of the Southern Pacific Company, who wiring from San Francisco said:

"Your wire to Mr. Sproule, Southern Pacific Company has no congestion of traffic on its lines. Soon as 1923 appropriations are in final form for public announcement will give you information requested."

Within the last few days, however, the Manufacturers Record has received a statement from the National Fertilizer Association, in the course of which it has said:

"The official statement of the California Grape Growers' Association that the prevailing shortage of cars will cost its members \$7,000,000 directs attention to the fact that conditions are not likely to improve, materially, during the winter months. This opinion is borne out by the announcements of the Car Service Section of the American Railway Association, which though taking every possible means to provide an even and adequate flow of cars urges the placing of all fall business at the earliest movement.

"Farmers, probably are most interested at this time in their fertilizer shipments. The Michigan State Farm Bureau has issued the following appeal to its members:

"The one big thing to be considered regarding fertilizer this year is the matter of delivery. There is an embargo in effect on goods coming from Baltimore and from Atlanta and there is not the available fertilizer material in the midwest section to supply all of the needs of this section of the country. We are absolutely satisfied that there will not be available freight cars to take care of all orders."

The E. E. Jackson Lumber Co. of Baltimore, operating mills with a daily capacity of 150,000 feet in Alabama, writes as follows:

"Our lumber operations in Alabama have been very seriously hampered by the lack of cars since the middle of July.

"We are located on a small independent road, the Alabama, Tennessee & Northern Railroad Corporation, which is entirely dependent for its car supply upon the Southern Railway System and the Mobile & Ohio Railroad. The A. T. & N. R. R. owns 550 cars, which is its proper proportion to take care of the industries on its line, providing it was given empties in exchange for loads. However, as it is a short railroad serving almost entirely a producing and not a consuming territory, these cars do little good unless empties are specifically sent to it in exchange for the loads it originates. Our difficulty in getting cars began much earlier than with most shippers of lumber in the South, due to the fact that the Southern Railway made no effort to fight the railroad shopmen's strike, and as a consequence the Southern was practically put out of business so far as its lines in our territory were concerned.

"We normally produce 150 cars of lumber and lath each month. Due to the fact that our business is somewhat seasonal, however, it is necessary that we obtain more than 150 cars per month in the busy season, that is, in the spring and in the fall. Furthermore, in the winter we cannot ship our output of air dried lumber, due to bad weather, so that we find it necessary in order to take care of our normal output to ship in some months during the year as many as 200 to 220 cars. As we have a dull period in business in mid-summer, the months when we have to ship a maximum of 200 to 220 cars must come in the spring and fall.

"To show you how hard we have been hit by the shortage

"To show you how hard we have been hit by the shortage of cars since the middle of July, we are giving you below table showing cars received by us in 1921 as contrasted with 1922, beginning with July:

	1921	1922
July	112	67
August	130	25
September	186	37
October 1st to 24th	180	96

"We wish to add also that in 1921, July and August were

extremely dull, while in 1922 we were largely oversold and could have made maximum shipments if we had been able to get the cars. The result of the car shortage on us has been to curtail our operations very greatly, resulting in changing what ordinarily would be a very satisfactory year into a very poor one.

a very poor one.

"We have been working with the Car Service Section of the Interstate Commerce Commission endeavoring to get relief, and while they have sent some cars to the A. T. & N. R. R. to relieve its situation, they have been only a small fraction of the number required. They very frankly say they do not see how they can do any better for us, as cars must be furnished first to move commodities on the priority list, and that we should consider ourselves lucky to receive any.

that we should consider ourselves lucky to receive any.

"It has been our experience as shippers on the Southern Railway for twenty years or more that the Southern has never had an adequate supply of equipment, and whenever there is a shortage of cars the Southern is especially hard hit, at least in our territory in Southern Alabama."

Mr. W. C. Arthurs, President of the Mt. Vernon Car Manufacturing Co., in a telegram to the Manufacturers Record under date of October 24, wired:

"Car building industry of country, not including railroad shops, delivered in month August 5605 new freight train cars when they should have delivered 27,000 to 30,000 if whole industry had been working to full capacity, but during that period they repaired 4974 freight train cars which would be equal to new cars, so far as new business was concerned, which would make output about one-third what it should have been, but carbuilders in common with other industries are being delayed on account coal and railroad strike, car shortages etc. We have lumber on road from Pacific Coast shipped July not yet received; railroads requiring two or three times as long to get material over road on account strike and inefficiency. If we can ever get over these strikes railroads will overcome this difficulty very quickly."

The Vice-President of a leading western railroad in reply to a query from a shipper wrote:

"I have your letter of October 5, which I have carefully noted. I fully realize and appreciate the grave situation, particularly upon the Coast, and I assure you we are doing everything within our power to relieve same. The writer, as well as every man in this department, is devoting his exclusive time to the movement of cars, with the hopes that we may in a measure correct the situation.

"We have thousands of new cars coming out from the builders. Delivery of these cars has just commenced, and we are sending every one that is suitable for western use to western lines in preference. In fact, we will not allow them to be loaded in any of the eastern terminals. I hope this may somewhat help conditions, but it really is a desperate situation.

"In more than forty years' experience in railroading, I have never seen anything to compare with present conditions. The war situation was tame compared with what we are experiencing in the West at the present time. A large number of our cars are away from home on eastern lines, and we are unable to get any of them returned. I presume you know what the Lake situation is at Buffalo, where it seems they are unable to discharge their cargoes, and business we had booked via the Lake routes is now in our warehouses and cars awaiting some further disposition, as the Lake carriers have shut down absolutely and refused to take on more business from us this season. The Union Pacific Railroad has a thousand carloads of California fruit in Omaha and Council Bluffs, which they are virtually unable to get rid of, no line out of there being able to handle.

hBesides, the coal situation in the Illinois and Indiana fields is critical. If we could get the crop out of the way, which is really the important feature just now, we would feel a little bit easier; then we could devote some of our equipment to the coal movement, etc., but there is such a tremendous agricultural demand—grain, livestock, poultry, vegetables—necessitating immediate attention in order to save from spoiling, that it is impossible to see how we are going to save it all.

"I assure you I am very grateful for your letter, and I will personally do everything within my power to help the situation on the Coast, as I keenly feel the necessity for double effort in that locality."

A big iron and steel concern sends us a very interesting

account of how their business is hampered by car and locomotive shortage, but asks that the letter be not published.

From a far western business man we have the following:

"It was a splendid idea to ask the presidents of the railroads how they found conditions of congestion on their line and what they are going to do about it, and I read with the greatest interest their answers, some of them exceedingly to the point; others of them not answering the question at all, but dealing with some small matters of improvements which they have in mind. But I note a lack of breadth of opinion. Not one of them seems to grasp the national transportation problem. They all are inclined to talk about their own road, without considering its articulation and interdependence with other systems. They all seem to feel this is an unusual occasion and that the traffic as it now is represents not only the seasonal peak of the year but the capacity of production,—all of which is a great mistake.

"The answers fall to grasp the big problem. They are not thinking about that. In general this is what they say: They would be all right if it were not for car shortage, the railroad administration, the Adamson law, or other superficial difficulties. I wonder if it is possible for the railroad men as a body to think in the terms that are necessary for a real honest-

to-goodness discussion of the problem?

"In view of present conditions, I had blocked out letters to railroad presidents, using as a basis the appalling conditions under which transportation is struggling. I am wondering whether it would not be entirely misunderstood and my replies would be negative."

Chas. E. Lewis & Co., grain brokers, Minneapolis, under date of Oct. 19 wrote of the car shortage as follows:

"The railroad car situation becomes more congested every day and it is upsetting calculations regarding the price of commodities. For instance, no railroads will let their cars go east of Minneapolis, except a few who will permit them to go as far as Chicago. They will not let their cars go down into Pennsylvania or New York or other eastern territory, as they find great difficulty in getting them back. The result of this is that grain is coming into Minneapolis and if it is in a foreign car, that is a New York Central, Pennsylvania, Erie, or any railroad car of a road that does not enter Minneapolis, then the grain in that car commands big premium. This is an important item for shippers to watch. If you can load your wheat or other grain in a foreign car you will get several cents a bushel more for it than you will in a car of any road which runs into Minneapolis or Duluth."

We are thus opening our columns to the pros and cons of this vital transportation question.

ENCOURAGING LAWLESSNESS.

 $\mathbf{M}^{ ext{R. H. L. CAIN}}$, an architect of Richmond, Va., in a letter says:

"I cannot too highly endorse the firm and outspoken stand which your great publication is taking in regard to the Prohibition amendment, and I am sure all good citizens will rally to your support."

Mr. Cain sends us a copy of a letter which he wrote to the Association Against the Prohibition Amendment in reply to a request that he join that organization. His letter is as

"Yours of September 30th, requesting my support for the movement which you represent, duly received. I am, of course, greatly surprised that you have me slated as a possible supporter of such a movement.

"I have been an ardent Prohibitionist ever since I have been old enough to know what Prohibition meant and I consider the Eighteenth Amendment the greatest blessing which has ever come to our land. I consider all of those who are working with you, seeking to undo the great good accomplished so far by this law, are only encouraging the lawless element of bootleggers who are endeavoring to operate in many sections of the country, and are making it more difficult to enforce the law.

"Those of us who are familiar with the methods of the supporters of the liquor traffic, know only too well, that the movement for light wines and beers, if successful, will mean a return of the open saloons in a short while, and I am quite sure there are enough good and self-respecting folks in this good land of ours to keep this from coming to pass."

Bi de tie st

N

pr No th co fo H lin

th

lin

in co in th ur bu

ho ki

by th by or

> ch to in ov els

on is, th

on giv ab

States Should Maintain Their Right to Issue Tax-Free Securities and Save About the Last Vestige of State Rights.

TWO recent significant items in the news are to be read together. One is the announcement from Washington that the Administration will make a concerted drive in favor of the proposed constitutional amendment to do away with tax-free securities. The other is a statement from Raleigh to the effect that Governor Morrison will ask the legislature of North Carolina to authorize the construction and operation by the state of steamships to ply between state ports and Baltimore, Philadelphia and New York, with the idea of decreasing what are termed excessive freight rates.

North Carolina, almost entirely free of alien-born population, is one of the most prosperous, progressive and energetic states in the Union. The folks down there have a habit of doing things, big things, and doing them in a big way. They have now, to illustrate, a tremendous road-building program under way. They also have a governor who thinks. Not long ago, in a very compelling way, he brought out the thought that it will be a great day for the commonwealths comprising the Union when they begin to look to themselves for help and cease turning appealing eyes to Washington. He seemed to think that tax money collected in North Carolina for North Carolina could be used by the Government of North Carolina with far more advantage to the citizens of the state than could tax money first passed through the Federal mill and dripped back, little by little, into North Carolina. The way to keep Federal taxes down was to stop asking Washington to do all sorts of things which the states could do better themselves, and if the demands from Washington were not so excessive, perhaps there would be something left for the state to collect on its own account, without undue burdening of citizens.

We do not think that ventures of any Government into business pay. It is doubtful if North Carolina would be more successful in operating ships than the United States has been. We use the suggestion merely to emphasize the point that the individual states will be wise to keep a tight hold of what money-raising privileges they have, for none knows what day they may be most urgently required. Indeed, it is not too much to say that states are already learning that the way to get something done is to do it one's self, independently. A congressman may be progressively blind, whereas an individual state at the same time may be officered by far-visioned statesmen, able to look the future straight in the face and prepare for it. Shall their hands be tied forever by the erroneous conception that Washington and Washington only should do things?

But if the states are to come back into their own and resume that active management of their own affairs which characterized their conduct in the early days, if they are to fight excessive federalization and centralization by a striking demonstration of their peculiar ability to attend to their own business better than it can be attended to by anybody else, how are they going to get anywhere unless they have high class credit facilities? And how high class will their credit be, comparatively speaking, if they are deprived of the one privilege the fathers were so insistent they retain, that is, the power to issue their own credit instruments without their being subject to withering or any other kind of taxation by the Federal Government, This power of independent financing, the very heart and soul of state sovereignty, is the only great power left to the individual states. When they give that up, if they do, it will be folly thereafter to talk about staying the encroachment of federal authority. Centralization will have been completely achieved in everything

There seems to be an obvious case against tax-free securi-

ties. The people have been told that they are the refuge of the rich, that they enable the rich to escape their share of the burden of government, and one might almost suppose that the Constitution, generations ago, was worded with such an object in view, although, as a matter of fact, only recently have income taxes been constitutional. So popular leaders cry "away with tax-free securities and stop the rich from plundering us!" Is it not worth while to think a bit and ask who, in truth, were the first and are now the chief proponents of the abolition of tax-free securities? Why, the bankers and brokers in the financial districts. They say they cannot to advantage float the bonds they want to sell when in competition with tax-free securities. Note that these very rich men, whom it is assumed the non-exemption of state securities from taxation would particularly hit and hit hard, are the very gentlemen who are most anxious to get tax-free securities out of existence. Why? It is simple enough. Funds that go into state and municipal loans leave no high toll behind for financiers. Tax-free securities happen to prevent, if the truth must be told, a vast amount of conscienceless profiteering. When a great and reputable banking house can gouge out of, say, the Belgium Government something more than double the legal rate for a well-protected loan, it is more or less natural for that and other bankers to object when they see American money going into domestic loans at small rates. They would rather have that money to handle for borrowers who are in urgent circumstances and who can be made to "pay through the nose."

There is an enormous amount of financing to be done in Europe by American bankers, so the auguries read and the prophets say. Before that great adventure gets into full swing it will be a good thing, think the international bankers, if competition from American states and municipalities is got out of the way.

It is argued that sums loaned to states and municipalities is taken from productive enterprises. The truth is that public money is the quickest spent. The turn-over is very rapid. Of the billions that have gone into tax-free loans, it is safe to say that two-thirds-more than that-have already found their way back into the general capital asset of the nation, to be used all over again. Moreover, virtually all of these tax-free bonds have one transcendent merit-they provide for their own amortization within a comparatively short time. This is quite in contrast to much of the general financing of the day, where earning power is capitalized, rather than investment, and the public's money taken without any idea of its ever being actually returned. What would transportation rates be now, for instance, if all railroad bonds had been compelled by law to carry an amortization feature? But financing has been through refinancing rather than by payment.

We know of no money being invested today, anywhere, that is more certain to yield big dividends than the proceeds from tax-free bond issues for the construction of permanent highways, drainage, waterworks, sewerage systems, etc.

It is charged that the privilege of issuing tax-free securities constitutes a temptation to small political units all over the country to run into excesses and squander funds on unwise undertakings. We wonder if anywhere in the world there can be found more conservative voters on a proposition involving taxes than in the ordinary American community. The farmers are so hard pressed that they examine with the minutest care any proposal for spending money. So do the smaller cities. In addition, there is a limit under the law, in most cases, as to loans which a municipality can make, just as there is a limit to the character of undertakings in

which a state may indulge. We take it as a truism that the spending of money raised by local bond issues is more carefully guarded-beyond comparison so-than is the expenditure of Federal funds.

If any farmer imagines that his own taxes would be decreased by denying hereafter to his own local securities the tax-free privilege, he is sadly befuddled. He will be taxed to pay the inevitably higher interest on local loans and this extra taxation will more than balance any gain he might, suppositiously, make in Federal taxes.

Indeed, we find nowhere any discussion as to benefits to accrue to the states from the passage of a constitutional amendment giving Washington the right to tax state issues. It will help the Federal Government, is the cry. Aye, robbing Peter to pay Paul! The aggrandizement of the national treasury at the cost of the state exchequers!

Many states voted for the income tax amendment to the constitution because they thought it would compel richer communities to bear parts of their burden. The proposed amendment we are writing about now could not conceivably have that effect. It would make the poor states poorer, even if it did not make the rich states richer.

There is nothing more dangerous in modern government than the tendency toward centralization and the destruction of local self-government. The temptation is insidious. Men ride into office on a platform of protest against this tendency, and before they have been in Washington a year bureaucracy has made centralists of them. Anything that is likely to further centralization is deplorable. The Romans were the greatest governors of wide territory ever known, and their cardinal principle was a maximum of local self-government. Some of the most astute political students alive believe in their hearts, with all the sincerity of their souls, that complete centralization would mean ultimately and inevitably another civil war, in the United States. That may be an extreme view, but history would support it.

Quite aside, therefore, from any question of financing or any issue of taxation, we believe it to be the solemn duty of the states to line up formidably against this latest effort to break through their greatest privilege and defense. They ought to retain at all cost a measure of financial independence, such as the founders of the nation decreed they should have, and they should never put it in the power of Washington to tax out of existence their independent credit rights. "The power to tax is the power to destroy," was one of the slogans of the Revolution, a fact established in the blood of the patriots, universally admitted in the United States and never challenged since independence was achieved. The power to tax the income of state securities would, therefore, be the power to destroy state credit. We doubt if that is a position which any state in the Union wishes to occupy.

PROHIBITION WORK ABROAD.

NE thousand copies of "The Prohibition Question Viewed from the Economic and Moral Standpoint" were sent to Australia some months ago by people interested in the development of prohibition sentiment in that country, and these books are now doing good work in giving the people of Australia the opportunity of knowing the sentiment in America in favor of prohibition as shown by the statements of President Harding and hundreds of the leading men of affairs in all parts of the United States.

While people in Australia, England and elsewhere have been eager to get copies of this prohibition book, there are a great many people in this country who have not yet studied it. They still have much to learn on the prohibition question, and it will only cost them 50c to learn it, for that is the price per copy.

Since the foregoing was written we have the following

which serves to emphasize the influence of "The Prohibition Question" in Australia:

The Victorian Anti-Liquor League,

Melbourne, September 11, 1922.

Editor Manufacturers Record:

I wish to thank you for the copy of "The Prohibition I have examined it carefully and am delighted Question. with the indisputable character of the testimony it presents in favor of Prohibition. It abundantly affirms my own judgment that Prohibition is one of the greatest reforms in the I am very anxious to place a copy of this document in the

hands of everyone of our state legislators. I will need 65 copies for this purpose. Will you kindly send by return mail 100 copies? We shall remit payment for these immediately upon receipt of same.

C. M. GORDON, State Director.

A GERMAN FIRM'S EFFORT TO SELL IN AMERICA.

Dear Sir.

something new to offer you, what does not exist in U. S. yet, it is a Gents Shirt of the finest quality so called TWO IN ONE, it consists out of a top shirt and underwear the same time, it is very comfortable practical and suitable for all classes of men.

Such a shirt would cost in U. S. at least 2 Dollars a piece. but my wholesale price to dealers is only 75 cents a piece, if you will send me 2 Dollars in a letter so I will send you 3 of this shirts for trial, all different designs just state the size you want.

As a rule everything what comes to-day from Germany is good and cheap. WHY? BECAUSE we have the best workers, who are working for 75% lower wages than the Americans, THATS WHY, so please do not hesitate and send 2 Doll. in currency for your 3 sample shirts and I can assure you that you will be very pleased with them, I also would appreciate it very much if you kindly would let all your friends make a use of my offer.

The foregoing is from a postal card sent to business men in Baltimore and Philadelphia and probably sent throughout the country. This card was evidently printed in very large numbers because the name of each city was printed on the address side of the card, which made it necessary to write only the name of the individual.

The statement that the best workers in Germany are getting 75 per cent lower wages than the Americans indicates the conditions that are prevailing in that country, and with which American workmen would have to compete if there were no tariff to protect us against such labor.

NEW ENGLAND COTTON MILLS HAMPERED BY 48-HOUR WEEK LAW.

R. HARRY C. MESERVE, Secretary of the National M. HARRY C. Manufacturers, writing from Boston in reply to some queries from this paper says:

"I think that there is no question but what the cost of living is lower in the South than in the North; on the other hand, it is also undoubtedly true that taxes are very much higher in the North. • • • Many Northern mills do have expensive villages and houses for at least a portion of their operatives. For instance, one mill has recently erected seventy-five houses at a cost of \$6000 per house. The rents charged for these houses are higher than usual,-from seventeen to nineteen dollars per month, but the loss per house or per operative per week is, I think, larger than for Southern

"Please be very sure that I have no desire to enter into controversy on any of these questions. It seems to me that the conditions under which the respective sections work are different and each must work out his own salvation with the utmost good will toward the other.

Our main difficulty in Massachusetts is with the working of the forty-eight hour law, which is a distinct and severe handicap. Wages, as you know, must be asways a local issue depending upon competition with other industries, cost of living, etc., but to run mills only forty-eight hours in competition with those that run fifty-five or more is, I am sure you will appreciate, a real hardship."

O th

The Way to National Upbuilding Is by Developing Great Waterway Transportation Opportunities.

JULIUS H. BARNES, President of the Chamber of Commerce of the United States, in an address at Omaha, on September 28, said:

"Between Buffalo and New York the four great trunk lines serving that port have, since the first of September, not contracted for a single bushel of grain for export movement. This obstruction of the free flow has resulted in an advance in the wheat price in Liverpool exceeding the advance in Chicago and American markets by five to seven cents per bushel. Moreover, within ten days the lake freight on grain for the Lake Superior port of Duluth and the Eastern lake port of Buffalo has advanced from two cents per bushel to five cents. This increase is the measure of vessel owners' apprehension that the grain-filled elevators of Buffalo cannot discharge the lake carriers on arrival and that a carrier will lose its earnings by lying in the port of Buffalo with undischarged grain because the railroads east of Buffalo do not relieve the elevators of their accumulation there. * * * The sum total of all these facts with relation to the wheat, corn and oats marketed by your farmers today may be fairly rated as five to ten cents less than the present market would justify if supplied with liquid and adequate transportation. If Nebraska raised 500.-000,000 bushels of grain, and if this condition should maintain itself throughout the crop year, it seems your farmers are deprived of 25 to 50 million dollars of possible earnings on their grain crop, and I do not need to point out to you what 25 to 50 million dollars enlarged spending power of the farmers would mean to other industries as well."

The Secretary of the Omaha Grain Exchange is quoted as declaring that never in the history of Nebraska and western Iowa has there been such a serious condition in the grain trade. Country elevators are completely filled and unable to take more grain from the farmers. For the last few weeks, the receipts at the Omaha market have been less than 150 cars per day, when they should have been at least 300 cars per day.

A Government transportation specialist recently talked with the vice-presidents in charge of traffic of several of the important trans-continental lines. He asked if the railroads would be able to handle the grain crops properly this year. One of the vice-presidents replied quite frankly that there would be enormous losses to farmers, due to inability to move the crops. He admitted that his company alone needs 15,000 cars. It was freely predicted that many millions of dollars would be lost on account of crops rotting on the ground. That prediction was made in the middle of August, and it has been verified.

We do not see how any advantage is to be gained by concealing the truth. It may be said that the coal priorities have interfered with the normal carrying capacity of the railroads, and that but for the coal situation they would have been able to handle the grain crop expeditiously. But conditions are never normal. An adequate transportation system would make a percentage allowance for abnormal events. There has hardly been a period in the last ten years when something out of the ordinary was not being offered as an excuse for the incapacity of the roads. Early in 1920 they were crying out that there was too much business. Think of it! Too much business in modern America! If the swamping of railroads under the mighty offering of food products from the Western plains were a necessary evil from which there were no escape, statesmanship might concern itself properly with a consideration of how most rapidly and ad-

n-

vantageously to bring the railroads up to the point where they could handle the situation. But it is admitted that under Government regulation and bureaucratic interference, the destruction of competition and the attempt at standardization, it would require not less than six billions of dollars of new money to bring about this improvement. The railroads can not get this new money. That is why a very powerful group of men are arguing that the only alternative is Government ownership and the rehabilitation of land transportation by use of the credit of the United States.

The dilemma would seem to be a serious one, indeed—since no country under the face of the earth can long stand the absolute loss of tens of millions of dollars annually in agricultural products, on account of failure to move them—were it not that nature itself has provided, with magnificent largess, a solution of the whole problem. The Great Lakes-St. Lawrence Waterway would put the Atlantic ocean into the heart of America. It would make Chicago and Duluth ocean ports. It would relieve the railroads of long hauls of heavy commodity freights, not particularly remunerative, and permit them to concentrate in the movement of high-class traffic, the volume of which would be notably increased by the stimulation in general production arising from the increased purchasing power of the farmer as the result of his better marketing conditions.

A prominent engineer is quoted as saying: "The capital cost as estimated by the engineers to complete the St. Lawrence Ship Channel, with its by-products of power, is not sensibly greater than the annual interest charge would be upon a sufficient amount of capital to be put into the railroads of the country to accomplish the same relief." Think of that! The interest alone on the sum that would be required to put the railroads in proper condition would solve the Western grain export problem by means of a waterway. In view of this fact, even allowing for heavy errors, if there are any, in the estimated cost of the waterway, it is remarkable that men who profess to have any vision at all should continue to oppose so desirable an undertaking.

No nation can stand still. It either goes forward or it goes back. Progress, after all, is only the capitalization of vision. It is the legacy that great men leave to civilization. To try simply to maintain a legacy inherited, and not to keep it alive by the tonic of new endeavor is to drop into a rut and go backward. The hope of the world lies in the brave and steadfast exploitation and development of natural resources heretofore of only potential and not of practical value to the world. Any potential transportation route is a natural resource of incalculable value. Only a nation of insane people, blinded by prejudice or ignorance, could fail to insist on the prompt opening up of such a route as it has been demonstrated is feasible from the Great Lakes to the sea.

The St. Lawrence Waterway and the Muscle Shoals development are the two great undertakings that challenge alike the intelligence and the integrity of the nation. We do not believe that anything but a colossal selfishness stands in the way of the full achievement of either enterprise. We do not question the sincerity of the distinguished gentlemen who are found in the opposition. But it is difficult to trace their connections without discovering, in practically every case, that they have business or other affiliations which have given color to their attitude. It is a remarkable thing that some men, who are most eloquent in their descriptions of the necessity of enriching the nation by means of foreign trade, are equally bitter in their denunciation of any plan to increase the nation's wealth by the obvious method of changing two such natural resources as Muscle Shoals and the St.

Lawrence Waterway into wealth-producing assets. Trade is an old-fashioned and a good method of obtaining wealth, but the creation of wealth is quite another thing.

We give little weight to the contention that the completion of the Northern waterway might be detrimental to Gulf ports. Even were it true, it would not justify a selfish attitude on the part of the South. The grain producers are entitled to the best and cheapest transportation it is possible to get, whether the grain moves North, East, South or West. So, likewise, would it be equally inexcusable for any Western farmers to oppose the Muscle Shoals development on any theory that they would not receive so great benefits as other farmers nearer to the enterprise. The grain and cotton producing interests ought to stand shoulder to shoulder in favor of both these great propositions. Let us have a "Development Bloc" in Congress-a Bloc devoted to the proposition that the Government will stand back of and support in all legitimate ways these two magnificent proposals. We predict that the national profits from the two together, if they could be measured, would show that they alone could pay the whole national debt within a century. And let us also unite with these constructive enterprises the fuel improvement of the Ohio and the Mississippi Rivers in order that our transportation facilities by water may help to save the country and likewise to save the railroads themselves.

SOUTH'S LEADERSHIP IN SANITATION.

NORFOLK has a wonderful new market house. In design, equipment, conveniences and health-conserving innovations, it would seem that this building leaves nothing to which modern sanitary science could add. It is fully described in an article, with illustration, published in this issue of the Manufacturers Record. A great credit to the important Virginia city in which it is located, it is also an example to cities elsewhere, in the country generally as well as in the South. It is another demonstration, furthermore, of the fact not universally recognized that in many matters of sanitation the South is now and has long been the leader in the United States and therefore in the world.

The records show that not only through Southern initiative was the yellow fever terror banished from the South and practically from the world, but nowhere were sterner and more effective measures taken to prevent the bubonic or black plague from getting a foothold in America. In whole cities, such as New Orleans, Mobile, and other seaports, every building was made absolutely rat proof, so that nowhere could the plague carriers find lodgement, even should they break through the shipside precautions against their debarkation.

The individual drinking cup and the anti-fly crusade, now of universal adoption, originated in the South.

New Orleans, to the unknowing a synonym for "the city care forgot," inaugurated and maintained, a dozen or so years ago, such a rigid system of inspection and sanitation in its hotels, restaurants and market houses as will be found even today in few if any cities north of the Mason and Dixon line. Under the direction of the State Board of Health, the kitchens of all public eating houses were put in a thorough sanitary condition, the market houses were cleaned and screened, and waiters were not allowed even to carry an uncovered tray of oysters on the half shell to a customer across the street.

In Staunton, Va., a market house was erected some twenty years ago which had every sanitary feature that could be devised at the time, and all over the South there has been for years an advance in these matters such as the larger cities of the North have not yet known.

Norfolk's latest example serves to call attention to a fact which should be widely known and profited by.

HAS BOLL WEEVIL PROBLEM BEEN SOLVED

R. WILLIAM B. REILY, a leading merchant of New Orleans, in a letter to the MANUFACTURERS RECORD takes the ground, based on his own experience, that the boll weevil problem has been solved, and referring to an article in the MANUFACTURERS RECORD of October 19th on the subject, says:

"I have read with interest the article in your issue of October 19, on the boll weevil.

"Having only a week ago made a special trip to Tallulah, La., for the purpose of investigating experiments being made there by the United States Government, the information gained will be of value to your readers who are interested in the growing of cotton.

"Unquestionably, the Government has found a way to successfully combat the boll weevil. The most convincing evidence to me was when I went into the cotton field and saw the beneficial result on the cotton after the poison had been used.

"The officials selected a plot of cultivated cotton land, with identical soil all over, cultivated by the same man, in the same way, with the same tools.

"I was shown a patch of cotton unpoisoned and another poisoned. The poisoned part produced 1200 pounds of bulk cotton to the acre, while the unpoisoned had 300 pounds,

"Having been raised on a cotton farm, I am a competent judge and can assert, beyond the question of a doubt, that a solution for the final destruction of the boll weevil has been found"

NEGRO COTTON GROWERS SEEKING WORK ELSEWHERE.

MR. R. M. BOAZMAN of the Boazman Lumber Company, Lineville, Ala., in a letter to the MANUFACTURERS RECORD calls attention to the large number of negro laborers in his immediate vicinity who cannot find employment by reason of present conditions in agriculture. Mr. Boazman writes:

"I would be pleased to have a little chat with you, in regard to the unemployment of the negro labor of this country, especially those that are on the farms, and practically know nothing but farming and waiting on white people. As you well know, to raise cotton in this part of the country is a thing of the past, and as the lands are too poor without fertilizer will not make corn in sufficient quantities to be a paying business. They have gathered about all the cotton, and when the last boll is picked and sold and paid on their debts there will not be one in fifty that will have a cent to live on through the winter, and I must say that they are in a distressing condition.

"I am sure there are thousands of people in your city and other parts north who would be glad to employ quite a number of these deserving negroes that would make good if they only had a chance. To any reliable person that you will recommend who will pay their transportation, I will gladly give the names of quite a number of peaceable good working negroes that want a good permanent home. If you think favorably of this plan would be glad to hear from you in the

There is a growing scarcity of labor for domestic employment as well as in many industrial pursuits. Within the last few days the Manufacturers Record has received quite a number of letters indicating the inability to increase the production in some lines of manufacture by reason of the scarcity of labor. This condition prevails in parts of the South as well as in the North and West. There is in this country at the present time a demand for labor sufficiently great to be able to utilize every intelligent, honest laborer who, in Mr. Boazman's section or elsewhere, has been thrown out of work by reason of boll weevil or other adverse agricultural conditions. These laborers may not be fitted for the jobs which are open, but somewhere in domestic service or in outside work, we feel sure that all of the colored people in Mr. Boazman's section can find employment.

but the aft con ind

att

the

No

H

wide the ing Federal who woo pro

of the is p two and

our

nar

siss me Ala cre hav

wa as our nar tes; yea tion

of twe much fina the mill

Ste

kno will into a n all

to r turn tion

VIIIM

)}

ORD

oll

cle

ect.

of

ah

ide

ion

ter

vi-

een

ith

the

her

ulk

ent

hat

RK

ny,

ORD

his

of

ard

10W

tuoi

e a

ton.

heir

e in

and

11111-

hev

re

adly

king

nink

lov-

last

te a

the

the

the

this

ntly

orer

own

agri-

the

e or

eople

HOW THE WAR FINANCE CORPORATION SAVED THE DAY.

In the Fall of 1920, when chaos ruled everywhere in the cotton districts, the War Finance Corporation was moribund and useless. Mr. Houston, who was then Secretary of the Treasury, refused to let the Corporation operate. Even after Congress, by overwhelming majorities in both Houses, commanded that the Corporation be revived, Mr. Houston induced President Wilson to veto the resolution, and it was necessary for Congress to pass it over his veto.

Senator Carter Glass, and certain other gentlemen, have attempted to demonstrate that there was no deflation and that restriction of credit had nothing to do with the nation-wide ruin of those days. We said that this refusal to let the War Finance Corporation operate was in itself a devastating form of credit restriction and was devised to assist the Federal Reserve Board in the breaking down of prices. Governor Harding used then to talk of "orderly marketing," by which he seemed to mean, since actions speak louder than words, that it was the duty of cotton growers to push their product on the market for almost anything they could get.

Two years have passed, and we were able to publish last week a symposium of reports from many of the Southern States, relative to the co-operative movement for the handling of the cotton crop. In every case each State reports that the policy of a gradual sale of cotton as consumption requires is proving a tremendous success. That is the difference between really orderly marketing and what Messrs. Houston and Harding called "orderly marketing."

The Co-operative Association in Georgia says, "The War Finance Corporation is co-operating with us and has approved our application for \$5,000,000;" Texas says, "The War Finance Corporation has placed at our disposal \$9,000,000; Mississippi reports that "The Association has secured a commitment of \$7,000,000 from the War Finance Corporation;" Alabama says, "The War Finance Board extended \$3,000,000 credit;" North Carolina writes, "Arrangements for \$10.000.000 have been made with the War Finance Corporation for financing our Association;" South Carolina announces that, "The War Finance Corporation has granted the Association a line of credit of \$10,000,000;" Arkansas reports that, "The War Finance Corporation has extended us a line of \$7.500,000 as we need it," and from Oklahoma comes word that "During our first year, we borrowed very largely from the War Finance Corporation, and are under many obligations for courtesy and advice from Mr. Meyer and his associates. This year we had funds available from the War Finance Corporation of sufficient quantity to probably take care of all our business and under terms that are practical," but, adds Mr. Stealey, general manager, "so far we have not used a dollar of this money, and do not think there is any likelihood that we will, but the fact that the money is available has made it much easier for us to complete negotiations in the various financial centers." That is the report from every State in the South. The War Finance Corporation is offering them millions of dollars, but not one of them, so far, has found it necessary to take a dollar of this money, since the very knowledge that the War Finance Corporation is ready and willing to help has encouraged local banks to step vigorously into the situation and assist their own people. Indeed, it is a magnificent demonstration of the new co-operation among all elements of the South for the rehabilitation of Southern

In view of the complete vindication of the incalculable value to national prosperity of the War Finance Corporation, when turned by Mr. Eugene Meyer, Jr., from purposes of destruction to purposes of construction; why should any confidence be placed in the present judgment as to deflation or any financial policy of men who at that time regarded the revival

of the Corporation as distinctly unwise and inadvisable? For instance, there is Senator Carter Glass, of Virginia, the chief Senatorial apologist for deflation, who actually did not vote, but took the trouble to make an announcement that if he had voted his vote would have been to sustain the President's veto. We wonder what the price of cotton would be today if Senator Glass and men of his mode of thought had been able to continue their domination of the Government's financial policy.

IN BROADER INDUSTRIAL DEVELOPMENT LIES THE PROSPERITY OF ALL SOUTHERN IN-TERESTS

G. L. MILLER & CO., of Atlanta, who have for years been placing bonds on Southern building operations, have decided to move their executive offices to New York in order to broaden their field of work and come in closer touch with capital. Writing to the MANUFACTURERS RECORD on the reasons for this removal Mr. Miller says;

"I cannot hesitate to use this additional opportunity of again emphasizing the need of the South today. Our work in moving our executive offices here does not mean we are in any way divorcing ourselves from Southern activities. Indeed, it is primarily for the purpose of increasing and diversifying those activities. You no doubt, know that a great share of investment funds coming into the South do so from this section. By our location on the ground, we find we are able to double our activities and our value to the South. So I want to emphasize once more the need of all Southern trade and commercial organizations, business houses, magazines, and everybody else waking up, getting into their best clothes, so as to make good appearances, using extensively and persistently printer's ink and letting these Northern people know more about that section of America especially endowed by nature."

There is an awakening all over the South to the need of broader activity in development work. The depression brought on the agricultural interests by unwise deflation can be overcome, so far as the South as a whole is concerned, by the expansion, which is within its power, of the industrial interests of this section. New markets for agricultural products can be increased by the development of manufacturing enterprises, creating a home demand for everything the farmer can raise.

The South is as yet in the infancy of its development. It can increase to an almost unlimited extent the utilization of its resources. Its water powers, as yet unharnessed, furnish a large field for expansion, and every hydro-electric development made broadens the field for creating industrial enterprises. Every hydro-electric power company in the South should be aggressively seeking to draw capital and industries into this section. Every railroad, every development agency in the South, should take a broader view of the potentialities of the South and of its responsibility to co-operate in building up the South than has ever been taken in the past.

An awakening of that spirit of enterprise which lifted the South out of the mire of Reconstruction days, ending with 1876, and gave to this section the wonderful impulse of the 80's, should be quickened into new life and new energy and new broadness of vision and new readiness to spend money to make known the possibilities of the South.

Agriculture throughout the nation has received a hard blow. It is greatly depressed—more so in the West than in the South. But through the upbuilding of manufacturing enterprises, the expansion of railroad facilities, the enlargement of port facilities, there can be created a prosperity in the South which will far more than overcome the loss occasioned by the depression in agriculture, and will be a sure means of helping to bring prosperity back to the farmers.

N

cit

th

ai

bu

100

cer

WB

abs

ais

fee

con

to 1

box

inte

the

arra

and

Up

T

A BOSTON BANKER'S VIEW OF REMARKABLE RECOVERY OF THE SOUTH.

PEOPLE in the North have little appreciation of the remarkable comeback, both industrially and financially, which has been staged throughout the entire South, and particularly in the Southwest, in the last six months," is the opinion of Mr. John Bolinger, Vice President of the National Shawmut Bank of Boston, who has just returned from a four weeks trip through the South, where he visited Memphis, Dallas, Fort Worth, Waco, Houston, Galveston and New Orleans

"In every direction", says Mr. Bolinger, "one can see definite signs of solid prosperity. Many Southern banks, which at this time of the year are, as a general thing, loaned up to their limits and requesting help from Eastern and Northern banks, are not only in a strong financial position but are able to place large amounts of money on call in the New York money market.

"Deposits in Southwestern banks, in the cotton-growing sections, are now higher than they have ever been. This increase in deposits is especially remarkable in view of the fact that cotton merchants carry practically no balances this time of the year.

"The usual course in other years has been for large demands upon Eastern banks about this time for assistance in financing the movement of the cotton crop. Just now, however, because of their own strong position, the country banks are borrowing very little. As a consequence, the Eastern banks find difficulty in placing much of their idle funds, as they formerly, did, in meeting the needs of crop financing.

"There can be no question of the genuine prosperity which is apparent in these conditions. One of the best features of the situation is the assurance that it brings of the Southern farmer's ability to liquidate some of his long overdue accounts.

"I have been informed that large sales of cotton have been made to American and European spinners, on call, prices to be fixed later. There can be but one interpretation to such action, the mills need raw materials badly, although they are hesitating in the matter of having prices fixed."

Mr. Bolinger reports that the impression among cotton men generally seems to be that cotton will continue to advance and may subsequently reach a price of thirty cents. "My own opinion, however," he says, "is that if it reaches a certain high level consumption may be rapidly checked. This would result, of course, in a price reaction."

But in this view Mr. Bolinger apparently ignores what is practically a world famine in cotton.

PROHIBITION AS VIEWED IN AUSTRALIA.

Farmers' Supply Store,

Coolamon, N. S. W., Australia, Aug. 21.

Editor Manufacturers Record:

Please send me three books of testimonials of the benefits of Prohibition in America. You are to be commended for your patriotic, sensible and just efforts to save the bodies of men for higher purposes than lying in the gutters, wasting time, dissipating their economic powers and separating themselves from their soul usefulness. I am not a "wowser," just an ordinary well wisher of mankind and appreciate and admire any man who is faithful at "the switch." I plan to have these books read by those who want to see the truth defended. The bad fellows who break over the laws of Prohibition, try to pretend that those laws are worse than before when they had their way to drag men down all the time and no law to prevent or call attention to what they do, but they are wrong and they cannot ruin as many now as before.

The law that prevents the sale, manufacture and curtailment of the use of strong drink is great, and a nation that

can teach the world a lesson as the United States have, is worthy to be praised instead of censured as the bad fellows who break the laws would make us believe. America will grow stronger with sober men being reared, and she will head the world in brains and industry if other nations cling to the drink evil. After America has tried Prohibition as long as the whiskey folks had their methods tried we shall see a harvest of homes, sobriety everywhere, vice at a minimum, and crime problems well nigh solved. Prohibition's good results dispel the clouds that try to intervene. When Britain and Australia join the world for prohibition, there will be gains so great that taxation's burdens as felt now will be lightened and we shall be better able to develop the material resources that now appeal for better management that we may keep to the fore of the world's progress.

Your contributions in your valued editorial columns are inspiring to all who would say: "All men up and every man a king." Sobriety and laws that protect are creditable. The Ten Commandments should not be set aside and your Amendment that prohibits the sale and manufacture of alcohol should not. Because men break the law is no reason why it should be repealed, but if they persist they should me made to feel the dignity and majesty of the law. Every one who breaks a law regularly enacted insults the whole of the body politic.

JOHN WHITE

From Australia, New Zealand, Canada and other foreign lands are coming many requests for the pamphlet to which Mr. White refers, namely, "The Prohibition Question Viewed from the Economic and Moral Standpoint," published a few months ago by the MANUFACTURERS RECORD. In that pamphlet President Harding, Judge Gary of the Steel Corporation, and several hundred of the leading manufacturers and educators of the country give their views as to the economic, as well as moral influence of our prohibition laws.

No man who is interested in this great question, whether he favor or oppose prohibition, can afford to miss the study of the views of these men who have discussed this problem in letters of intense interest. The pamphlet of 100 pages of the size of those of the Manufacturers Record, carries so great an amount of information on the economic and moral side of prohibition that it should be read by every man and woman in the country. Many business men have ordered anywhere from 10 to 500 copies each for distribution among their friends and employes.

The price of a single copy is 50c and the price in larger numbers is as follows:

 50 copies.
 40 cents each

 100 copies.
 35 cents each

 1000 copies.
 30 cents each

We urgently advise every reader of this paper to buy one or more copies and study what is one of the most vital issues before the world today.

A New Trade Route Via Mobile.

The Warrant Export and Discount Corporation, Birmingham, Ala., has issued a booklet which is largely devoted to consideration of "a new trade route which by its differentials gives opportunity to many manufacturers and wholesalers to reach new territory and to secure new customers." Concerning this route it is said that in connection with steamship lines out of Mobile through the Panama Canal to and from Pacific ports, besides lines to and from Philadelphia, New York and other ports on the Atlantic coast and Texas ports on the Gulf coast, thousands of tons of freight have been moved at a saving of from 20 per cent to 50 per cent as compared with all rail rates, which in many instances were so high as to prevent business. Traffic over this route, it is further stated, is growing rapidly and new ships are being added to the service. The booklet was compiled by Charles Francis Wood, vice-president of the Corporation.

VIIM

Archi

22.

miw.

ead

the

and

and

ins

ned

rces

eep

nan

The

end-

ohol

y it e to

who

ody

eign

hich

wed

few

hlet

and

tors

l as

ther

y of

n in

the

reat

e of

man

here

ends

rger

one

ninged to
tials
rs to
cernnship
from
New
ports
been
nt as
were
it is
being

arles

Building \$500,000 Market in Norfolk Along New Lines

MODERN STRUCTURE TO EMBODY LATEST IDEALS IN SANITATION, ECONOMY AND CONVENIENCE,

[Special Correspondence Manufacturers Record.]

Norfolk, Va., October 24.

"That pure foods may be kep; in the best manner and sold at a fair price," a \$500,000 market building is under construction by this municipality. It embodies all the latest features of modern sanitary market buildings as erected in American cities, with innovations introduced by the architect, Benj. F. Mitchell, this city, after the result of five years study of this type of building.

The structure will cover a lot 140 by 230 feet. The side aisles will be about 25 feet wide and the center section about 50 feet wide. The entire space will be enclosed and no products will be sold except those stored within the building, all of which will be under glass. There will be 100 stalls for handling foodstuffs of every character. The center portion will have a ceiling height of 50 feet, the walls carried above the side aisles to give an abundance of light through clear story windows. Every opening in the building will be screened to keep out insects. All the furnishings will be installed by the city, so that there will be absolute uniformity in design and layout.

Stalls will be located around the four sides of the building, and inside this rectangle will be 14 "islands" 20 by 30 feet containing room for four stalls each with plenty of aisle space between the "islands" as well as the side stalls. In the center of these "islands," refrigerators each 9 by 18 feet and about 10 feet high, are to be placed, having four compartments—thus giving space to each stall operator.

All furnishings will be as free from wood as it is possible to make them, at least little will be visible. The refrigerator boxes will be finished on the outside with white cement. The interior will be free from all pipes and wires. These will all be placed underground in two specially constructed reinforced concrete tunnels nearly 7 feet deep and 5 feet wide, traversing the entire length of the building.

The service floors will all be of tile on concrete, and so arranged as to drain to outlets, making it possible to clean the building by hose. The stall fronts are of glazed brick and glass cases will screen and cover the products in each. Up to a height of six feet the walls of the interior will be of

glazed brick, and the remainder of face brick. The ceiling will be plastered.

The main street fronts will be of limestone, while the service front—that is, where the products sold are brought in—will be of pressed brick. There will be three fronts for the use of customers and one exclusively for service.

Among the outstanding features will be an incinerator in which all refuse will be burned as it accumulates. It will be lighted by indirect methods and flood lights for this purpose will be placed upon the refrigerators located in the "islands"—so that no electric lights or fixtures will be visible. Telephones will be placed at each stall so that deliveries may be made to customers when desired. Plans have been completed for providing a centralized delivery service to handle the products of every operator in the market. Business will be strictly on a "cash and carry" basis.

Comfort stations are provided for both races and for both sexes, as well as similar facilities for the stall employees. Locker rooms will be furnished the merchants. An overhead delivery system will facilitate handling articles from the refrigerating rooms, located in the service section, to each stall. And it will not be necessary to touch the stuff on the hooks from the time it is placed on the runway until it reaches the respective stalls.

No Live fowl will be allowed within the market proper. Crates will be received in the service department, the fowl taken from them and hung on a rack by special hooks, stabbed, allowed to bleed until dry, then steamed, carried across the room to the "dressing" tables and when ready for the customers passed to the various stalls. The refuse will be distributed to the incinerator from the cleaning rooms. The cold storage rooms located on the second and third floors are 50 by 90 feet, and are sub-divided by wire partitions to facilitate handling and storing products owned by different stall keepers.

A complete restaurant for market employees and the general public, 36 by 45 feet, will also take a part of the second floor. There is room in one end for the office of the manager. The fish market will be a unit in itself. There will be two elevators.

Baker & Brinkley Co., of this city, have the general contract. At this time the concrete work to the ground level



\$500,000 MARKET BUILDING FOR CITY OF NORFOLK

Many novel features are involved in this municipal structure which is now under construction after plans by Benj. F. Mitchell, Architect. Baker & Brinkley, of Norfolk, have the general contract.

.....

lii

pl

Bi

in

ole

has been completed and work is being vigorously pushed on the fabricating of the steel. Among the firms engaged and the various work entrusted to them are the following:

Art Metal Construction Co., Jamestown, N. Y., hollow metal doors; W. A. Burckard Co., Inc., Norfolk, Va., electric work; Richmond Structural Steel Co., Richmond, Va., structural steel; Alexander & Shipp, Norfolk, Va., painting; Lewter F. Hobbs, Inc., hoisting engines, concrete mixers, etc.; Rocke-Lacy Co., face brick interior and exterior and cut cast granite; W. L. Rocke, steel windows, elevator doors, etc.; Baltimore Construction & Supply Co., Baltimore, Md., refrigerating; C. V. Hill & Co., Trenton, N. J., market fixtures; Conklin-Armstrong Terra Cotta Co., Philadelphia, Pa., ornamental terra cotta; Grover L. White, Norfolk, Va., tile work;

Truscon Steel Co., Youngstown, Ohio, reinforcing steel; Onondago Litholite Co., granite base; Sam Merabella, Norfolk, plastering; Allen Steel Products Co., steel cash; International Casement Co., Jamestown, N. Y., casement sash; Building Supplies Corporation, Norfolk, Va., glass and glazing; C. A. Nash & Son, Norfolk, wood sash and doors; C. M. Baylor & Co., Norfolk, Va., mill work; Odendhal-Monks Corp., sheet metal and roofing, Norfolk; M. A. Williams Sons Co., Norfolk, Va., plumbing; United Cork Co., New York, cork insulation; Special Service Flooring Corp., New York City, composition floor; C. A. Nash & Son, Norfolk, Va., hardware; Harry E. Hall Co., Norfolk, Va., screens; Consolvo & Overmeyer, Norfolk, Va., limestone; U. S. Gypsum Co., Chicago, gypsum roof.

A Revelation of Sovietism.

By COURTENAY DEKALB.

"Lenin himself confessed, in a moment of depression, that—though there are nominally 600,000 communists in Russia, there are not 6000 who can be trusted implicitly."

This significant statement is made in what is beyond doubt the truest and most vivid picture that has yet been drawn of Soviet Russia, viz, "A Prisoner of the Reds," by Frances Mc-Cullagh, Captain in the Royal Irish Fusiliers, recently published by E. P. Dutton & Co., of New York.

It is important that the American people should obtain a correct vision of the Russian experiment from one who saw as a free agent within that terrible social maelstrom, instead of being personally conducted as a guest of the Soviet political machine. Only through revelations such as these by Capt. McCullagh can we grasp the reasons for the many articles commendatory of the Soviet system, that have come from the pens of able and honest men who had gone to Russia to report "the truth."

The Bolshevik government takes care of such visitors from the moment when their passports are presented at the border. They are given every facility to see Russia, but under conditions that are closely controlled by the officials assigned to supervise the visit. They are lodged in sumptuous "guest houses," and "Princely apartments in the Kremlin are sometimes placed at the disposal of visitors whom the Bolsheviks regard as peculiarly sound in their views. * * * Along with this lavish hospitality there is a sleepless vigilance to prevent the 'guest' coming in contact with the wrong sort of people, and the most meticulous care to keep him in the right atmosphere."

Chapter XIX tells the whole story of the Bolshevik system for ensuring this favorable propaganda, and for falsifying the reports sent out by foreign correspondents when they happen not to be flattering to the Soviet government. That government is composed mainly of journalists, men who understand the value of publicity. To quote again from Capt. McCullagh -"Lenin has decided, with the same cold, matter-of-fact, but inflexible determination which he has shown in all the other tremendous changes that he has decreed, that his newspaper correspondents shall exercise all that influence over public opinion which has hitherto been the monopoly of the Church; and Trotsky speaks calmly of having replaced the Army Chaplains by political Commissars, who will appeal to the emotions of the soldiers exactly as the Chaplains used to do. At the Red Front in Siberia I attended military revival meetings presided over by Military Commissars, who employed all the arts of the Methodist preacher in order to arouse the fanaticism of the soldiery. By wild harangues and by making the 'congregation' join in the singing of fierce revolutionary songs, those Commissars worked the troops up to a

state of excitement such as I have seen parallelled only $i_{\rm B}$ Stamboul and Belfast."

This book, with its account of the collapse of Kolchak's attempt to save Russia, the dramatic picture of the frenzied rout amid the terrors of an arctic winter, intensified by the horrors of a devastating epidemic of typhus, the swift descent of the people to a condition worse than barbarism, the graphic, pitiful story of the assassination of the Czar and his family, the flight of this Irish prisoner to Moscow under ruses and disguises that almost failed, assumes special importance at this moment, when the Allied nations are trying to settle the question of the Bosphorus in a manner that will not offend the mighty men in the Kremlin whom every nation but our own has seemed afraid to boldly antagonize. There were signs of weakening even in Washington, and there are subtle influences still at work to soften our righteous repudiation of all the works of Bolshevism for the sake of commercial advantage.

Capt. McCullagh explains that Lenin assumed that England would not resist the Turks, and the recent weakening of the Allies at the behest of the conquering Mustapha Kemal Pasha confirms his judgment. Lord Balfour displayed such ignorance of the Soviet government, or such disbelief in the statements of informed men concerning it, that he sent a communication to them not more than a month ago protesting against the failure of the Soviets to restrain the Turkish Nationalists, to which Karakhan, the Soviet deputy foreign commissar, replied that Turkey was fighting for her existence, and that not only was he unwilling to hinder the Angora government's "defensive struggle," but he extended his "good wishes for Turkey's struggle to regain her independence."

The success of the Turkish allies of the Soviets, for that is what they are in effect, is a matter of extreme peril to European civilization, in view of the efforts being made by Lenin and Trotsky to encourage other aggressive movements in Islam. It was noted a few weeks ago, that the emissaries of Abd-el-Kerim, the Moroccan chieftain who has been in arms for a year against Spain, were accompanied in London by Socialists of pronounced Russian sympathies.

It seems incomprehensible that the European nations should not unite on a common platform of protection to the Christian faith and to the political institutions that have grown up under it; and overthrow the clique of 6000 radicals in Russia who work through a bare 600,000 doubtful adherents to control a nation of 125,000,000 peasants who are themselves opposed to Sovietism, and thus put an end to further machinations against the progress of the human race by the Red Czar and his minions.

el:

r-

ldg; M.

nks ms

TTA

a.,

vo

0.,

in

ied

he

ent

ic.

ly,

nd

at

he

he

wn

ns

tle

ion

ial

ng-

ing

nal

ich

the

: a

set.

ish

ign

ice.

ora

boo

t is

to

by

nts

nis-

een

in

uld

ris-

wn

in

ents

ves

ina-

zar

Judge Gary Wants Another Peace Conference and More Immigration.*

ANNUAL ADDRESS OF PRESIDENT AMERICAN IRON & STEEL INSTITUTE, DIRECTED TO WIDE DISCUSSION OF ECONOMIC QUESTIONS—NO FUNDAMENTAL OBSTACLES SEEN TO GREAT PROSPERITY IN AMERICA.

What is to be said on this occasion relates to economics; and it will be spoken from the standpoint of the public interest. Our business life is represented by various groups of men and women and involves a great diversity of economic activities. Taken alone, each branch of industry is naturally selfish and influenced more or less by unworthy motives. In discussing any particular one, all others must be considered as a part of the general public. If in management any wrong or injustice is perpetrated, it is the general public which must finally in some way suffer the consequences.

Therefore in the consideration of all economic questions, every one should endeavor to determine the final effect upon the people as a whole. Personal or private gain or advancement or political advantage must be subordinated to the general public good.

As industry has developed, populations multiplied and wealth increased, the problems and difficulties in economic life have grown and we have been correspondingly forced to concentrate our minds upon proposed measures for relief or protection against imposition.

And the greatest of all wars has very much complicated the situation, even in this country. Our recent industrial strife, the present pending agitation for the creation of an organization of classes calculated to secure power and benefit by physical force under the leadership of vicious men, with which you are more or less familiar, the profiteering that still exists, if in a lesser degree than formerly, are temporary relapses, so to speak, of the war fever, during a prolonged period of convalescence.

We are still suffering from the very high cost of living caused by the despicable cycle, developed during the war, which carries high prices from a starting point in a given place, proceeds around a spiral and returns step by step to a higher basis. Speaking generally and yet making the illustration specific, labor, which constitutes eighty-five per cent of the cost of production, is paid very large rates, but, with exceptions, is not paid more than is proper, because compelled to pay high prices for the living costs. Normal conditions have not been fully restored and apparently are not likely to be in the immediate future, unless extraordinary efforts shall be made.

We are apt to conclude that everything objectionable can be overcome by the adoption, amendment or repeal of laws. But on reflection one possessed with average intelligence and information, knows this is a fallacy. Many laws have been passed which are improper, and no doubt new ones ought to be enacted, all bearing upon economic questions. This will always be the case.

It is the purpose at this time to refer briefly to certain old and fundamental principles, which in modern times have been by large numbers overlooked or at least underestimated. Reference is made to the law of supply and demand.

This law is inexorable. It is like the mills of the gods. It may be slow but its work is sure and fine. In its application, it is technically the doctrine expressed by the old and well-known phrase "quid pro quo." Individuals, groups, populations, become habituated to the idea that it is possible

and also justifiable to get something for nothing; to get it by flattery, by mere promise, or by main strength and physical force.

But it might as well be admitted first as last by every individual, collection of persons, or nation, that in order to obtain what is desired, there must be rendered an equivalent value, and that if secured on any other basis the business will not be satisfactory. What amounts to an equivalent or fair consideration in any transaction is, of course, mutually determined by the parties concerned, and if each agrees freely and voluntarily with full knowledge of the facts, uninfluenced by coercion, action is and should be final.

If one seeks to acquire property of any kind, or service a fair price must be paid; or if service demands a certain price, the fair equivalent in work should be rendered. Any attempt to bring about rules of conduct contrary to these fundamental principles will not be successful. If put in practice by force or fraud they will eventually fail. There must be standards that are just and logical, as between the parties connected, and not inimical to the public weal.

When an individual or association of individuals can and does collect an unconscionable amount for a commodity or for work, as the result of any circumstance or combination. the general public must and does finally pay the bill. This is inevitable and it is a pity that large portions of the public overlook or ignore this fact. It is not difficult nor embarrassing for a man in business to increase the production cost of what he sells by additions in salaries or wage rates if, at the same time, he correspondingly increases selling prices.

What is to be done to prevent a practice which increases prices or costs from a starting point around or across back to the start and again commences another advancement? The first thing for every one of us to do is to think. One of our most prominent and ablest editors not infrequently urges us with emphasis to think, earnestly, seriously and all the time. We must adopt and practice the suggestion.

When we ponder over the situation with the idea of suggesting a remedy, the first question presented relates to combinations or conspiracies to suppress natural laws. If one is actuated by motives of cupidity or dishonesty, one is apt to suppress and then oppress. A combination calculated to control business or production either as to quantities or prices, by the employers or by the employees, interferes with the natural course of business and results in hardship upon all who are outside of the combination, who may be termed the consumers. A moment's reflection will bring conviction that it is because of these conditions, legislation has been invoked with the ostensible purpose of protecting the public, though it must be admitted that sometimes the real motives have been quite contrary to this idea.

But in this connection another question is presented, namely, how are we to distinguish meritorious from vicious legislation, presumably intended to prevent oppression? Any statute that unnecessarily interferes with the natural law of supply and demand works incalculable damage to economic progress and prosperity, and is disastrous to the general public or to a nation. The people must be provided with food and other necessaries. Business must be active and prosperous. Work must be furnished for carrying on the affairs of the country.

^{*}Address by Elbert H. Gary, President, American Iron and Steel Institute, at Semi-Annual Meeting, Hotel Commodore, New York City, October 27, 1922.

N

f

n

fr

81

eı

to

no

OI

W

of

th

in

sh

lo

in

ar

of

or

m

ch

st

of

pe

an

la

na

W

at

de

8u

ter

If workmen are not treated as well in this country as elsewhere, they will depart from our shores. If producers are not permitted to secure reasonable returns on their investments, their producing facilities will be abandoned and their capital invested elsewhere. We are in competition with other countries, now more than ever before, and capital here must earn a fair rate and at the same time treat labor decently and justly.

To be the "father" of one's country, compelled to consider all these intricate questions, to solve the problems confronting us, to reasonably protect all interests, and more than everything else, to satisfy the personal conscience, requires the patience, perseverance, wisdom, ability and honesty of a President like the one now administering the affairs of this country. We should strive to hold up his hands; we should pray for him and not find fault or condemn. He is doing better, much better, than any one who unjustly criticises him could do if in his place.

From what has already been said you are probably at least mentally inquiring, what is to be done? What is now proposed? How can business be done with fairness and with justice, except by the adoption and enforcement of laws which absolutely control business as to prices, rates, deliveries and all other particulars, and which secure proper treatment of every one, even though this would necessarily interfere with full, free and unlimited action on the part of all different groups in the advancement of their own interests respectively?

Every one should attempt to answer these questions for himself or herself. A proper answer would be that the natural law of supply and demand should not be interfered with by the Government or by any administrator of the laws, except in cases of turpitude, and this applies to all business transactions. There are already too many man-made laws, and perhaps too many attempts to apply them, which are calculated to interrupt and hinder progress and industrial prosperity.

The utilization of the great wealth, natural resources and productive capacity of this country should be permitted without interruption or hindrance up to the limit of propriety. But how shall this be accomplished since laws and their enforcement provide the only absolute rule for the concuct of persons? The answer is, by the enforcement of all those laws which establish order and safety of person and property as against riot, physical force and intimidation; enactments or amendments which permit immigration of foreigners on the basis of quality rather than numbers; and new laws or amendments which permit and require full publicity of economic transactions so far as they affect the public welfare.

We have not fully appraised the value of publicity. Its practical results and its necessities in all departments of economic life without discrimination or exception have not been given due consideration. The full exposure to the people of business methods and management on the part of public and private institutions and organizations will create and firmly establish a powerful, effective and satisfactory public sentiment, which, on the average and for the long run, will be more potential than penal statutes.

Investigations by legislative committees sometimes have been of great benefit in exposing to the public facts relating to misconduct or mismanagement, and have resulted in correcting existing evils, but more frequently they are harmful because unfair, politically partisan and managed without regard to rules which govern legal procedure. The committees are often made up largely of lawyers, some of whom are inclined to deal in personalities, are vindictive and arbitrary, and as the witness or other person subject to investigation is not usually permitted to have a lawyer to represent and protect him, great injustice is likely to result. All inquiries for the benefit of the public concerning private affairs, to be effective, must be made with strict honesty and impartiality.

When the public is constantly given all proper information concerning business, after ascertained honestly, impartially and intelligently by a Government Board of undoubted ability, non-partisan in character and including every branch of industry without exception, the public interest will be protected and not before.

We have been passing through an industrial conflict, involving commission of crime, heavy losses in commerce and industry, both to capital and labor, and deprivations to the general public which reached almost to the brink of extreme suffering and death, carried on by one side whose methods and amount of money expended, or the purpose of the same, were not exposed to the public view. Fortunately a wise, patient and fair-minded administration was willing and able to materially assist in bringing about a cessation of hostilities.

There is nothing to be said at this time against labor organizations or their leaders; certainly there is or should be no personal animosity. But to permit any group, and this representing only a minority in its branch of industry, to be exempted from publicity, is an injustice and a wrong to the general public.

It goes without question that in business there are numerous matters relating to operation and management which are of interest only to the persons or concern connected, and these need not and should not be divulged to the general public, some of them particularly before consummation of pending negotiations; but as to the matters which at the time affect the public welfare there should be the right to have inspection by a competent, disinterested and non-partisan body. Let us demand in this country full, fair, impartial, competent publicity, applied without fear, favor or discrimination.

The steel industry should and would welcome such a condition. It was proved to be desirable and proper during the panic of 1907 and a short period succeeding. It is true, complaint was made by a partisan congressional committee in regard to the addresses made by the meetings, notwithstanding they were all recorded and reported to the law department and other departments in Washington; but the courts held they were proper and highly advantageous to the public, though they also held, as they ought, that what followed months later on the part of a few individuals was objectionable. There is no good reason why the public, through proper agencies, should not be present at private meetings of groups. It is, however, wrong to treat any branch of industry differently from all others. Of especial interest just now is the treatment, with like rules, privileges and penalties of both employers and employees. Unless and until that is brought about there can never be industrial peace nor can the public interest be protected. The untrammeled right to contract and the right to enforce contracts, both based on the law of supply and demand, together with opportunity on the part of the public to have the facts exposed, are essential to the protection of the public interest. Partial, prejudiced or incompetent investigations will not suffice.

The doctrine of supply and demand, which is one of mutuality, is germane to the present public and private discussions relating to the enormous debts owing by certain foreign nations to the United States. They were voluntarily, openly and fairly contracted. They cannot properly be cancelled or disposed of on any other basis, without doing violence to well-recognized principles of justice and rules of propriety. To cancel these debts or any part of them without full payment would be forced charity, and that is never agreeable to the donor and, as a rule, equally disagreeable to a self-respecting person or nation. It is the individual citizens of the different countries who are to be consulted and whose decisions must control. Americans generally would not be contented with governmental action which relieved from debt the citizens of a foreign nation by increasing the burdens of the

ion ally ity, inted

22.

inand the eme ods me,

ise. ble ies. Or. be this

he

nerare and eral of the

to san ial, disndithe

omin indarturts plic. wed ion-

per ups. dif-7 is of is can

t to the the tial iced mu-

euseign enly lled e to ety. pay-

f-rethe deconthe

e to

the

former. Likewise foreigners generally would oppose any such enforced act of charity. Certainly it would be abhorrent to the business men and women of both countries. This attitude has no bearing upon the question of furnishing charitable and Christian relief to foreigners who are in distress and need immediate aid, which cannot be provided at home. This has always been and will continue to be done by the people of every land. Each of you has done what you could, reasonably, in charitable contributions, and this will undoubtedly continue to be your habit.

The attitude and conduct of a nation should not be different from that of an individual. If your friend is in real need and is honest and trustworthy you will assist him by donation or by loan, or both, but in the latter case you do not expect him to turn the loan into a gift if and when he is in any way able to pay. If he attempts this, your respect for him vanishes. To retain your confidence he must use every effort, up to the limit of his ability and opportunity to earn and to pay. Especially do you insist he shall work, and work hard, in any capacity offered, for this is what you would do if similarly situated. You would, of course, extend the time of payment if absolutely necessary, but you would not do so if he were keeping an automobile or eating terrapin or liberally extending his business in order to compete with

In the judgment of many of us the foreign nations can and are willing to pay their debts, some sooner than others, and mest of them sooner than is now generally admitted. This we have publicly asserted several times. We know something of their capacity to work and earn and save and thrive; of their success in business and their mode of living. No doubt, in many instances, productive capacity has been reduced and we share in their suffering on account of deprivation. We should be cheerfully willing to extend payment at reasonably We should be glad to make new loans low rates of interest. whenever we are confident they will be paid, and thus assist in restoration and rehabilitation. We should be friendly and helpful, responsive to the chords of gratitude for friendly assistance in the past, demonstrating by word and deed that we desire a continuance of the friendship of our acquaintances

But there is no "royal road" to success. There is no way of paying debts, of receiving benefits, of acquiring property, of securing and retaining positions of employment or office, public or private, or obtaining assistants or workmen, skilled or unskilled, except on the basis of reciprocity, of returning fair equivalent to be mutually agreed upon. Every man or nation in order to measure up to obligations must work, and save; must be prudent and fair and economical.

All this applies to the payment of debts, to the reestablishment and progress of business, to the money rates of exchange, to the financial and other exchanges of commodities or activities. It is insisted rates of exchange cannot be restored or maintained except by obedience to the simple rule of supply and demand. Foreign debtor nations need not expect a return of fair rates of exchange except by producing and selling to other countries what can be utilized by the latter. It is believed some, if not many, of the great debtor nations can produce more than they are now producing and can, without suffering, materially increase their economies. When a man or nation is in debt there should be practiced at all times rigid economy and maximum industry until after debts are paid and the equilibrium of the basis for exchanges is restored. It is needless to ignore the well-tried law of supply and demand. It cannot be done successfully.

Personalities have not been indulged in. It has been intended only to discuss and apply rules and principles of common knowledge; to call attention to the fact that artificial expedients cannot be satisfactory or successful. Every nation, every state, every people, every class, every group, every

man, woman and child must always be treated fairly, reasonably, justly. Every one must act with due regard to the rights and interests of all others. This is the panacea for all human troubles.

It is to be hoped there will soon be held in Washington another peace conference for the full and frank discussion of all unsettled financial, commercial and industrial questions in which our people are interested, directly or indirectly, to be participated in by able, open-minded, well-disposed representatives from the different nations, such as those who appeared at the recent limitation of armament conference. If there shall be such a meeting, and the delegates are all of the type referred to, there will result incalculable good to all who are parties. They would not decide or discuss how to abolish or overcome the old established law of supply and demand, how to avoid or repudiate existing legal obligations, but rather how and when to fulfill them without irreparable injury to anyone or the sacrifice of principle. It would be found that the United States is always disposed to be just. reasonable, lenient, impartial and friendly. that members of such a conference would be compelled to consider, and in a large measure be governed by, the wishes of their respective constituencies, it is believed that the large majority of the populations making up such constituencies would be sensible and honest.

The world, now more than ever before, needs peace, inter-. national and domestic, political, social and industrial. a time for work, economy, saving, thrift; honest, reasonable and intelligent recognition, observance and enforcement of the rules of law, propriety and common sense. Gentlemen, what we preach let us practice, conscientiously, persistently and loyally. Let us always transact our business on the basis of rendering a full equivalent for what we demand or receive. Thus we shall best succeed and prosper.

There are no obstacles to continued prosperity in the iron and steel business of the United States except such as may arise from interference with the natural course of supply and demand. There is a great abundance of high quality iron ore; steam, gas and coking coal; limestone and other raw products, all within easy reach; also furnaces, mills and shops of highest grades, railroads and ships for transportation. every variety of experts of pronounced ability, organizations and systems equal to any in the world; and the demand for every kind and character of steel is far in excess of capacity to produce. Steel is needed immediately for buildings and structures, for railroads, for farms, for pipe lines, for canning, for equipment of every kind, for guns, tools and implements of thousands of varieties, for wire, ranging from the finest watch springs and piano strings to the largest cables, for cars, automobiles, aeroplanes and other vehicles for transportation of property and persons, and many other purposes.

Order books are well filled, finished steel, aggregating many thousand tons, is stored at the producing mills, ready for shipment, and this notwithstanding the recent labor troubles at the mines and in transportation circles. Unfortunately there has been an interference with the mining and delivery of coal and with the transportation of finished iron and steel, and there is an insufficient supply of labor.

If the natural course of business had not been interrupted we would now be enjoying success and prosperity in our industry greater than ever before, so far as volume is con-Who is blamable? The answer is: Any one who by word or deed has interrupted or hindered the operation of the natural law of supply and demand; or has interfered with the full, free and unlimited right to work, to operate and to produce.

All that is necessary to prosperity in the United States is the legitimate utilization of our stupendous resources. can produce here everything to supply to our inhabitants their necessities and their comforts; also luxuries and even delicacies. We can produce without limit, fuel, food, clothing and shelter; everything to make us comfortable and happy, and then have left much for other countries whenever they are in need. We would sell for cash or work or on credit; or when distress is occasioned by calamity, furnish supplies without consideration except a continuance of friendly and Christian response. We are no better than the people of other nations; and we are no worse.

The fault for lack of continual prosperity in a measure may be laid at our own doors. If so, then let us to the best of our ability overcome our faults and consistently adopt and practice reasonable and constructive policies.

Fault in many places no doubt exists. There are too many tinkers, too few experts. Many individuals, by reason of political position or other limited success, assume to know a good deal about matters, particularly economic, concerning which they have little information, derived either from study or experience, and these generally talk the loudest and longest on these subjects. Others from a desire to control or create antagonisms or to derive personal profit, attempt to interfere with the natural and reasonable course of business, sometimes resorting to force and brutality. We must keep our own houses clean, search our own hearts, remain true and loyal and above approach, and then openly proclaim the truth at proper times and places.

Just at this time it is generally recognized there is a shortage of labor, although now and generally there are considerable numbers of idle men who do not ask for or desire steady work. For various reasons many workmen have returned to their homes in foreign countries. Business here was dull, and besides, these men on account of very large wage rates had accumulated money and believed themselves to be independent. The shortage in labor, however, has come principally as the result of the percentage immigration laws which have limited the number of workmen who would now come to this country if not prevented by the laws referred to. After some experience these laws are now believed by large numbers to be unreasonable. Ostensibly, at least, they were aimed at the sudden and large increases in the foreigners who were locating here, many of them entertaining views hostile to the ideas of our Government. These laws ought to be promptly changed. The restrictions upon immigration should be directed to the question of quality rather than numbers of foreigners coming to this country. Measures for limiting the number of immigrants to those who are clearly shown to be healthy, morally, politically and physically, ought to be clear, strict and enforceable; but the number allowed to come here should be equal to the necessities of our industries. The administration of the law could be under the control of a competent and impartial governmental commission or department, to be managed for the benefit of the general public and not for the profection of any special class or the exploitation of any impractical or injurious theory. This is one of the most important questions now being debated throughout the United States.

In spite of the difficulties which have confronted industry and appreciably frightened investors, the manufacturers of steel are now producing, on the average, about seventy-five per cent of their estimated capacity. This is more than double the total capacity twenty years ago. We are making a better quality of steel, are increasing diversification of shapes for additional uses; and in many ways we are extending capacity and effecting economies, although selling prices have not kept pace with larger costs. We shall soon get back to a basis of business that will yield fair profits, if permitted to proceed without unreasonable interference.

As to general business conditions, in addition to what has already been said, great significance should be given to the publications concerning the enormous savings bank balances. These show conclusively a disposition to economize, whatever

may be the reasons. Economy and saving are fundamental to thrift and prosperity.

In this greatest, richest, most admirable country there should be the continuance of prosperity without prolonged depressions. The iron and steel industry can be a decided influence toward progress and stabilization.

\$500,000 Industrial Training School to Be Erected for Negroes at Norfolk.

Norfolk, Va., October 25—[Special.]—An elementary and industrial school building to cost \$500,000 will be erected in this city according to plans now in preparation by Benj. F. Mitchell. It is intended to provide a means for adequate instruction for negroes in all kinds of industrial and manual training.

Boys will be taught automobile mechanics, carpentry and cabinet work, masonry, plastering, drafting, janitor service, etc.; girls will be instructed in such subjects as sewing, household economics, laundry work, etc., all in addition to the other regular school courses. In effect the instruction will help to make them useful people, fitted for a special service by proper training and experience and along lines for which there is not only now a strong demand but an assured future demand. The architect Mr. Mitchell states that a \$70,000 building was recently completed here by the Brown Savings Bank, practically all of the work being done by colored workmen and in a very creditable manner.

The plans for the new school are being rushed so that bids may be asked possibly within the next 60 days and thus permit work to get under way in the near future. Economy of construction is to be a feature of the architectural design. The entire building is to be of fireproof construction, all concrete, smooth finished, on a skeleton reinforced concrete frame. The roof also will be of reinforced concrete. Plans are under way for the installation of boilers for heating, these to be fired by oil rather than by coal. Establishing an open air gymnasium on the roof of the building will be an added feature.

The school will consist of several sections, covering roughly an area of 70 by 420 feet, with several wings therefrom. It is to have an auditorium with a seating capacity of about 1200 students, and facilities for a total of close to 2000.

All the various shops and training rooms will be especially equipped with modern devices and tools necessary for instruction in the various trades.

Plan Citrus Development of 240 Acres—Employees Provide for Their Own Future.

The Lake Garfield Investment Co., Inc., of Bartow, Fla., organized by employees of the Roux Crate Co., has purchased 240 acres of land to develop and plant in citrus trees. In undertaking this new activity the employees anticipate the time when the Roux Crate Co. shall have completed the development of its timber resources at Bartow. They thus provide for their future employment.

As bearing on its plans, the company writes to the Manufacturers Record as follows:

"The original stockholders have agreed to pool their savings and spend same in the development of citrus lands. We have bought 240 acres of land from some of our employers and hope to be able to develop and plant in citrus trees at least 40 acres per year. The Roux Crate Co. has timber enough to last 12 to 15 years, so that we can plan on an income at our regular work for that length of time. When we cut out here, work in our line will be scarce. However, by putting our savings regularly and consistently into the improvement of Florida citrus lands, we feel very confident that we will not have to worry about employment when our present jobs play out."

01

Among the honorary directors of the Lake Garfield Investment Co. are members of the Roux Crate Co. tal

ere

led

ed

and

ted

ni

ate

ual

and

ice.

180-

the

vill

rice

ich

ure

000

ngs

oids

hus

my

ign.

on-

me.

der

he

air

ded

hly

It

out

ally

in-

ees

Ma.

sed

In

the

vel-

vide

NU

ings

ave

and

east

ugh e at

out

ting

nent

jobs

rest-

Organizing Communities To Fight Organized Crime.

[What Detroit and some other cities of America have done to lessen crime is lucidly set forth in the following statement by Geo. C. Smith, director of the Industrial Bureau of Baltimore's Board of Trade. That Baltimore itself has organized to fight the criminal organizations that have preyed upon the city for some time is set forth in a gratifying manner by Mr. Smith, and in the article is information that should be helpful and inspiring to every city in which organized crime has showed its hideous head.—Editor Manufacturers Record.]

By George C. Smith, Director Industrial Bureau, Board of Trade of Baltimore.

The leading trade and civic bodies of Baltimore have organized a Criminal Justice Commission, the third of its kind to be created in the United States. The criminal underworld in America's leading cities has been organized for years, but it is only within the past few months that there has been made an effort to organize the leading citizenry of any American community to place the administration of criminal justice on a sounder and more efficient basis.

During the past few years there has been developing a public consciousness of the fact that something is wrong in the handling of criminals and in the prosecution of criminal cases. Fortunately, the police departments, courts and prosecuting attorney's offices in the leading cities of the country have been fairly free from corruption. They have not been wholly free from political influences, however, nor have they improved their machinery for handling criminal cases as rapidly as the criminal has improved his equipment used in the commission of crime.

The cunning, the scientific and legal knowledge of the criminal class has increased rapidly during the past few years, due in part to the wider circulation of knowledge through the press and motion pictures and to the greater intimate publicity given criminal cases by the press. No longer can the criminal classes be dealt with if we are to use the obsolete machinery of a few years ago. For example, it has been found in Detroit, Chicago and Toledo that approximately ninety per cent of all major crimes have their inception in the theft of an automobile.

Antiquated and undermanned courts, improperly selected and inefficient prosecuting officers with too little assistance from the leaders of the bar and a rapid multiplication of red tape in procedure and evidence have all aided in smoothing the path of the criminal, making it increasingly easier for him to avoid prosecution or paying the full penalty for his crime, even though he be detected, arrested and indicted.

In at least three cities in the United States ways have been found to overcome these growing evils and in these cities the leading citizens are now concerning themselves with the amount of crime existing, with the efficiency of their police protection, with the character and ability of their prosecuting officers, with the organization and effectiveness of their courts and with the need for legislative and constitutional changes looking toward the speedier and simpler handling of criminal cases.

Detroit has, perhaps, accomplished more along these lines than has any of the larger cities. Detroit's crime clean up has been the result of, not a crime survey or the establishment of a crime commission, but of the ridding of the city of partisan politics and many of the evils attendant thereto. Detroit has a business men's administration, a city council of nine men selected at large, a prosecuting attorney named as a candidate by the Bar Association and the Citizens League, a reconstructed criminal court from which politics has been eliminated, a law making it impossible for one person to be on the bond of more than one accused, a jury system which, backed by public sentiment, makes it possible to get good men, not unemployed, on the juries, improved conditions at the penal institutions so that judges are not ashamed to send convicted criminals to prison, and, finally and most

important, a spirit of friendly co-operation on the part of all the agencies of the city government.

Major crimes in Detroit decreased 58 per cent in 1921, as compared with 1920. Within seven days, including Sundays and holidays, 66 per cent of all felony cases were disposed of in 1921 as against 2 per cent in 1919, and within 28 days 84 per cent of the cases were disposed of as against 15 per cent in 1919.

The elimination of politics from the police department, through the co-operation of Mayor Couzens and his appointee, Commissioner of Police, Dr. James W. Inches, has built up a fine morale and a rigid discipline in the police department. This department is fully equipped with high powered automobiles heavily armed to combat the work of automobile bandits. With a population of more than a million and with 78 square miles of city to patrol, there are 1930 men on the police force of which 201 are in the detective bureau. A well organized police school is maintained three months for probationers and a school will be started this winter for all men on the force irrespective of their rank or length of service in the department. Promotions are made on the record of the policeman. Civil Service was eliminated when politics was eliminated. Automobile equipment consists of 16 patrol wagons, four detective flyers, one Cadillac, 13 Dodge, one Buick, 55 Fords, 60 Henderson motorcycles, ten trucks, one armored car and one animal ambulance. Total 162 vehicles, none

The Prosecuting Attorney's office is headed by a successful lawyer, designated by the Bar Association, and forced to run because of an organized public sentiment. He has thirteen assistants.

The reorganized Municipal Court, called the Recorders Court, is recognized by all agencies in Detroit as the principal factor in the crime clean up. For nearly fifty years Detroit has been without a Grand Jury, with its delays for presentments and indictments. Some years ago the police magistrates' courts were done away with.

The change was made

- (1) To relieve the congestion in the court and consequent delay in disposing of cases by
 - (a) Increasing number of judges.
- (b) Creating a unified organization and providing for responsible administration of it.
- (2) To adopt modern methods in the treatment and disposition of offenders by
 - (a) Organization of a psychopathic clinic.
 - (b) Development of a probation department.
- (c) Creation of specialized branches for handling various classes of offenders.

Formerly, misdemeanants were tried in the police court while persons accused of felonies were arraigned and examined here and bound over to the Recorders Court for trial. Felony cases were tried in this latter court and misdemeanants could appeal from the police court to it. The upper court also tried ordinance violations and condemnation cases.

The new court is a consolidation of these two courts with the addition of two judges. The court organizes itself for administration purposes, electing a chief justice who distributes the work. A psychopathic clinic was created, and regular court hours were adopted. One judge is assigned to examinations, held daily, another to ordinance violations,

1

ta

ar

of

ha

m

as

th

ob

me

M

Pr

bui

son Jar

pul

wei

seci

kin

por

of 1

the

mostly traffic cases and another, because of his alleged unfitness to try criminal cases, has been assigned to condemnation cases. The general policy of the court is determined by a majority of the judges and operating efficiency rests upon the presiding or chief judge. Appeal lies from trial before judge to trial in the same court before a jury. Arrests are made on warrant recommended by the prosecuting attorney and granted by a judge.

During the past few years Chicago has had a remarkable reduction in the number of its major crimes, and is now disposing of 70 per cent of its criminal cases within thirty days from date of arrest. There were no unsolved murders in 1921. Chicago has met the situation with the organization of a Crime Commission, which began functioning January 1, 1919. The Commission was organized by the Chicago Association of Commerce "to promote the efficiency and activity of all officers and departments of the State, county and city administration charged with the duty of suppression, prevention and punishment of crime." The commission is composed of about one hundred and twenty representative business and professional men. The officers are (1) President, (2) Three Vice-Presidents, (3) Secretary and Assistant Secretary, (4) Treasurer and Assistant Treasurer, (5) Operating Director and Assistant Operating Director. There are twelve committees as follows:

Executive Committee, including all officials as above, except operating directors, with a total membership of twenty-one. Police (5 members).

Sheriff, Coroner, Bailiffs and Clerks (7 members).

Juries (4 members)

Courts and Prosecutions (9 members). Punishment, Parole and Institutions (8 members).

Origin of Crime (5 members).

Statistics (5 members).

Legislation (6 members).

Finance (28 members).

Publicity (5 members).

Motor Car Thefts (5 members).

There are fifty directors, ten with terms expiring each year for five years.

The commission has

- (1) Analyzed the crime situation in Chicago.
- (2) Made permanent record of every major crime committed in Chicago since January 1, 1919.
- (3) Followed every major criminal case through the courts to the end.
 - (4) Kept a record of every criminal arrested.
- (5) Reduced murder, burglary and robbery through cooperation with public authorities.
- (6) Prevented guilty criminals from excaping the penarty of the law.
- (7) Prevented the unwarranted release of criminals under sentence.
- (8) Helped clean up the professional bondsman situation.
 - (9) Improved the personnel of juries.

The commission deals primarily with major crimes, murder, burglary, robbery, and motor thefts, (the latter because 90 per cent of all major crimes have their inception in the theft of an automobile). They keep a separate record on each case and follow it to the end. They also keep a separate record of every criminal in Chicago, so far as his court and penal record is concerned, supplying copies of such record to the interested parties, court, prosecuting attorney, parole and pardon boards, wherever desirable to do so. They keep a record of all bonds posted, checking values. They have stopped many leaks in procedure against criminals. They maintain a complete replica of the criminal court docket. They also, through their committees, prepare legislative bills seeking improved methods in handling criminal cases and providing for sure, swift and adequate punishment for crime.

Recently the Crime Commission, after a thorough investigation of the police department, securing 1000 additional police, after the City Council had voted "no funds available." They have also been able to increase the number of judges handling

Cleveland organized early this year the Cleveland Association for Criminal Justice following an exhaustive survey made by disinterested outside experts of all the agencies charged with the administration of criminal justice. This was probably the first comprehensive survey of the kind ever made in this country, having been undertaken under the direction of the Cleveland Foundation at a cost of about \$58,000 and requiring nearly eight months for its completion. The Association for Criminal Justice was organized to carry out the findings of the survey and with functions similar to those of the Chicago Crime Commission.

Although the association did not get under way until March of this year, there has already been noted many splendid results, both in reducing the number of crimes and in the handling of criminals and criminal cases by the courts and prosecutors.

The Cleveland Association for Criminal Justice is a federated association composed of thirteen civic bodies. Two representatives from each of these bodies, with twelve delegates chosen at large and the operating director constitute the Board of Directors. The first annual budget has been fixed at \$35,000. The Director receives a salary of \$8000. There is an office force of four on record and three besides the director cover outside work, principally at the courts. Unlike the Chicago Commission it is interested in all arrests while the Chicago Commission concerns itself only with the major crimes.

The Director of Public Safety, the Chief of Police and the Municipal Court Judges are all strongly of the opinion that the Association is getting good results. They profess to be co-operating with it and believe that every large community should have similar agencies.

Baltimore recently organized the Baltimore Criminal Justice Commission, which will shortly be incorporated and gotten underway. The Commission was organized by the Board of Trade in an effort to reduce crime and to stimulate the effectiveness of all the various agencies charged with the administration of criminal justice. At the outset the Commission will be composed of representatives of twenty-two of the leading industrial, trade and civic associations and will function somewhat along the lines of the similar organizations at Chicago and Cleveland.

A special committee of the Board of Trade, appointed atmost immediately after the murder of William B. Norris, one of Baltimore's leading contractors, in a daylight pay-roll hold-up, has made a careful investigation of the administration of criminal justice not only in Baltimore but in Boston, New York, Chicago, Detroit, Cleveland, Toledo and Pittsburgh. While the committee did not believe that there was a local crisis sufficient to justify popular alarm, it felt assured that the machinery for protecting its citizens and for prosecuting crime had not developed with the growth of the city. The committee considered seriously at first the advisability of bringing to Baltimore a corps of the country's leading experts on police, prosecution, courts, etc., for the purpose of making a scientific study or survey of all the agencies charged with the enforcement of the law. The time and expense required for making such a survey, with the possible concurring loss of interest by the community, led the committee to consider other and more practical means. It was realized that an organized public sentiment was needed and must endure if permanent results were to be obtained. A commission, therefore, so organized that provision could be made for continuous surveys, and that could begin functioning at once, was determined upon.

It will be the duty of this commission to aid the Police Department, State's Attorney's office, and Courts, in reducing crime and to that end it will maintain such records as are

22.

ling

cia-

rvey

cies

This

ever

the

bout

tion

arry

r to

ıntil

l in urts

Two deletute been 8000. sides urts. rests

the

the

that

o be

nity

Jus-

and

the

late

the

Com-

-two

and

nniz-

l af-

rris.

-roll

stra-

ston,

was

for

the

ad-

try's

the

the

time

l the

. It

eded

ined.

d be

tion-

olice

icing

are

deemed advisable. In order that every factor connected with the administration of criminal justice shall receive constant attention, special committees will be appointed, having charge of such subjects as police, prosecution, juries, courts, punishment, paroles, pardons, penal institutions, public office administration, legislation and similar related subjects.

The active membership of this commission will be composed solely of leading organizations having a substantial interest in the objects in view, such organizations being entitled to a representation of two of its members on the Board of Directors, the Board of Directors having the further right of increasing its membership through the selection of a certain number of additional directors from the public at large. The following organizations compose this association at the outset:

Board of Trade.
Clearing House.
Chamber of Commerce.
Stock Exchange.
Merchants and Manufacturers Association.
Builders' Exchange.
Credit Men's Association.
Fire Underwriters' Association.
Lumber Exchange.
Real Estate Board.
Old Town Merchants & Manufacturers Association.
Advertising Club.
Canned Goods Exchange.
Maryland Hotel Men's Association.
Export & Import Board of Trade.
City Club.
City-Wide Congress.
Women's Clvic League.
League of Women Voters.
American Legion.
Bar Association.
Automobile Club.
The advantages to be obtained through the format

The advantages to be obtained through the formation of such a commission over any other method of procedure are extremely convincing. In the first place, action can be obtained at once on many of the more obvious deficiencies. Secondly, the commission, through its committees and staff, acts as a continuous survey, combining as the occasion merits, the best of both the scientific and the practical methods of approach.

The financial support necessary for the effective conduct of the commission will be supplied by subscriptions of the general public, including individuals, firms and corporations having an appreciation of the value to them and to the community of the prompt enforcement of law and lessening of crime.

Baltimore adds itself, therefore, to the few large cities in America which have gone on record in a constructive way as being opposed to crime and criminals. Through the membership of the bodies composing the commission, a force of at least twenty thousand citizens will have a voice in seeing that justice is properly administered and that archaic and obsolete methods make way for new devices, institutions and methods so necessary for the prevention of crime and the speedy prosecution of criminals.

MUCH ACTIVITY IN SOUTHERN BUILDING AND INDUSTRY.

Prospects Bright for Continued Increase in Number and Value of Buildings to be Erected.

As indicated by the number of Southern industrial and building developments reported in the Manufacturers Record the notable activity in this direction continues despite some unfavorable conditions. For the ten months from January to October inclusive, 22,051 industrial items were published, and 12,525 building notices. In addition there were reports on 817 financial corporations and 4107 new security items, together with 7195 want items, including all kinds of machinery, proposals and supplies wanted.

The totals for October show 2360 industrial reports, 1039 building and 365 financial items, the latter embracing corporations formed and new securities issued. The construction of roads, bridges, culverts viaducts, etc. is very active, while the provision for housing facilities, including the erection of

dwellings, hotels, apartments, schools, etc., is commanding much attention.

In a survey of the general building situation throughout the United States, S. W. Strauss & Co. of New York make the following comment:

"A wholesome tone pervades the building industry as the end of the most successful season of its history approaches. An unabated consistency of progress has been sustained during each of the past ten months, and its achievements attained in spite of many obstacles and retarding influences have not been surpassed by any other department of commercial or industrial activity in the country."

The figures herewith as compiled by the Manufacturers Record show something of the character and extent of this activity as manifested in the sixteen Southern states.

The state of the s	Totals for	for Jan- Oct. (Inc.)
Industrial Developments.	0	19
Airplanes, Stations, etc Bridges, Culverts, Vladucts, etc Canning and Packing Plants. Clayworking Plants Cool Mines and Coke Ovens. Concrete and Cement Plants Cotton Compresses and Gins	164	1,563
Canning and Packing Plants	22	219
Clayworking Plants	2	93
Coal Mines and Coke Ovens	48	408
Concrete and Cement Plants	8	61
	8 9	121
Cottonseed Oil Mills	23	34 178
Floatric Light and Power Plants	116	990
Fortilizer Plants	1	52
Drainage Systems Electric Light and Power Plants Fertilizer Plants Flour, Feed and Meal Mills	12	168
Foundry and Machine PlantsGas and Oil Enterprises	22	230
Gas and Oil Enterprises	. 76	865 449
Ice and Cold Storage Plants	49	29
Iron and Steel Plants Irrigation Systems	4	21
Land Developments	133	946
Lumber Manufacturing Metal-Working Plants	34	361
Metal-Working Plants	26	283
Metal-working Flatis Mining. Miscellaneous Construction Miscellaneous Enterprises Miscellaneous Factories Motor Cars Garages Tires etc	22 93	215 586
Miscellaneous Construction	156	1,643
Miscellaneous Enterprises	204	1,813
Motor Cars, Garages, Tires, etc	95	1,146
Railways	5	113
Railway Shops, Terminals, Roundhouses, etc.	14	43
Road and Street Construction	705	6.203
Sewer Construction	95	1,035 27
Shipbuilding Plants	ő	13
Street Railways Telephone Systems	10	176
Toytile Wills	35	360
Textile Mills Water Works	136	1,185
Woodworking Plants	33	403
	2,360	22,051
Buildings.		040
Apartment Houses	59	812
Association and Fraternal	31 35	383 616
Bank and Office	105	1,171
Churches	37	414
Court houses	. 7	127 2,771
Courthouses	271	2,771
Government and State	14 34	122
Hospitals, Sanitariums, etc	43	429
Hotels	33	441
Miscellaneous Railway Stations, Sheds, etc	15	114
Schools	182	2,840
Stores	138	1,398
Theaters	13	164
Warehouses	22	322
	1,039	12,525
Financial.	-	-
-	90	817
Corporations	275	4,107
New Securities	210	7,101
	365	4,924
Machinery Wanted.	040	W 10*
Machinery, Proposals and Supplies Wanted	643	7,195
	4,407	46,695
Totals		
Fire Damage	198	1,432
	4.605	48,127
	4,000	

Plans for Lake County's \$250,000 Courthouse.

Tavares, Fla., October 26—Plans are in preparation for the courthouse which Lake County will erect here at a cost of \$250,000. The structure will be 64 by 150 feet, 4 stories, concrete foundation, concrete and tile construction, with tile roof. It will be equipped with vaults, metal doors, ventilators, hardwood floors, etc. Alan J. MacDonough of Eustis is the architect.

not

lub

ma

we.

and

ica

tan

Cri

thi

pro

Sale of Bonds for Financing Southern Improvements Over \$268,000,000 for First Ten Months of This Year.

For the first ten months of 1922, there was sold a total of 1265 issues of Southern improvement bonds, as shown by the items published in the financial news columns of the Manufacturers Record. The value of these issues reaches \$268, 178.643.

In October there were 85 issues sold with a value of \$25,-050,233; the largest amount is credited to bonds for road building, street paving and the construction of bridges, the total for that classification being \$11,486,922 for 36 issues. For the first ten months of this year the road building total reaches nearly \$109,000,000 for 425 separate issues.

The sale of bonds for miscellaneous developments, which includes all work thus financed and not covered in the other headings, shows a total of \$7,246,000 for the month of October, and for the first ten months of 1922 over \$82,000,000.

The total for school bonds for the ten month period is over \$44,000,000 made up by 338 separate bond issues.

For sewer, drainage and water works improvements f_{0r} ten months, there is a total of over \$33,000,000 provided by 215 issues of bonds. October in this classification shows 18 issues for a total of \$5,344,000.

NUMBER OF BOND ISSUES AND VALUE BY CLASSIFICATION AND BY STATES.

			OCT	OBER.						
		Roads		Schools		Sewers		Misc.		Total Value
Alabama			1	\$73,000			1	\$18,000	2	\$91.000
Arkansas	5	\$1,087,000	-	410,000			1	80,000	6	1,167,000
Florida	2				4	\$1,446,000	2	243,000	8	2,040,800
Georgia	~	001,000	1	44,000	*	\$1,110,000		230,000	1	44.000
Kentucky	2	337,500	4	44,000	4	90.000			3	427,500
Louisiana	2	161,000	4	30,000	1	500,000			4	
Maryland	_	101,000	1	30,000	1	500,000	4	30,000	4	691,000
Mississippi	2	00.000		40.044		814 000	2		10	30,000
Missouph			2	40,811	4	314,000	2	489,000	10	935,811
Missouri	5		-		2	343,000		007 000	7	6,191,000
North Carolina	2	282,000	1	10,000	1	15,000	4	985,000	8	1,292,000
Oklahoma	1	71,000			2	2,041,000	1	210,000	4	2,322,000
South Carolina	4	990,000	1	45,000	1	500,000	2	193,000	8	1,728,000
Tennessee	2	111,622					1	16,000	3	127,622
Texas	6	1,187,000	3	730,500	2	95,000	3	710,000	14	2,722,500
Virginia	2	300,000		,	_		1	3,822,000	3	4.122.000
West Virginia	1	668,000					2	450,000	3	1,118,000
Totals	36	\$11,486,922	10	\$973,311	18	\$5,344,000	21	\$7,246,000	83	\$25,050,238
		FIRST	TEN M	ONTHS OF	1922.					W
		Roads		Schools		Sewers		Misc.		Total Value
Alabama	11		11	\$1.591.000	4	\$60,000	15	\$2,458,500	38	\$9.089,500
Arkansas	27	4.056,500	10	593.000	6	398,000	17	3,640,500	60	8,688,000
Florida	40		18	1.860,000	20	2,988,500	40	9.511.000	118	21,532,300
Georgia	14		16						40	
Kentucky	9			5,177,500	6	1,053,000	4	333,000		9,572,500
			11	1,931,500	-7	1,024,000	5	3,252,500	32	7,780,500
**	34	4,703.500	21	2,316,000	12	1,969.500	17	9,649,700	84	18,638,500
Maryland	16		6	658,000	7	1,585,000	12	1,491,000	41	6,103,000
Mississippi	17	2,049,000	19	719,811	11	648,500	15	4,441.000	62	7,858,311
Missouri	19	12,781,000	16	2,798,000	21	3,613,000	15	18,420,885	71	37.612,865
North Carolina	63	26,244,500	59	10,883,000	33	3,644,000	45	6,621,000	200	47,392,500
Oklahoma	11	1.144,400	16	2.158,480	19	5,493,000	19	1.219.000	65	10.014.880
South Carolina	29	4.505,000	23	2,005,500	11	3,476,000	5	476,000	68	10,462,500
Tennessee	24	2,479,287	16	1.519.000	7	1.050.000	14	2,398,000	61	7,446,287
Texas	92	28,085,750	82	8,862,000	49	5,478,000	43	5.178,250	266	47,604,000
Virginia	14		8	662,000	5	575,000	17	10,502,000	44	14.116,000
West Virginia	5	1,349,000	6	438,000	i i	010,000	4	2,480,000	15	
	Bernstein						-			

Harbors to Be Developed Near New Orleans Industrial Canal—Will Connect by Laterals.

New Orleans, La., October 28—[Special.]—A week after the announcement of the purchase of a site by the first permanent industry to establish on the Industrial Canal—the Lukens Steel Company—comes the news of the organization of a company to develop industrial harbors on the adjacent land, harbors which will be connected with the waterway by lateral canals.

The undertaking is a development of the plan developed by John H. Bernhard, waterways engineer, who made a report some months ago to the Association of Commerce, describing how oil, lumber, steel, chemicals and other harbors, in which would be concentrated the industries of one type, could be created.

Though it was unable to undertake that solution of the problem, the Dock Board, in the policy it has laid down with respect to the canal, said it would not prevent any private undertaking from putting such a plan into effect, under proper control, of course.

Accordingly, Mr. Bernhard has organized the New Orleans Industrial Canal Land & Harbor Company, with a capitalization of \$100,000, of which two-thirds is paid in. Other officers are Frank B. Hayne, vice-president; Paul F. Jahneke, treasurer; Hugh E. Vincent, secretary, who are business men of note here.

Mr. Bernhard outlines his plan as follows: "We will seek to show the oil companies, for instance, the advantages that would come to each if they were grouped together in a harbor adapted to meet the needs of that industry. When we have convinced a sufficient number, we will act as their agent in reaching terms with the dock board as to the construction of a connecting canal, and other details of wharfage, etc. Then we will represent the group in the acquisition of the land, whether it be public or private."

Adjacent to the canal, there are about 100.000 acres of undeveloped land on which can be created industrial sites.

15-Story Hotel at Memphis to Cost \$1,500,000.

Memphis, Tenn., October 26—Hotel facilities at Memphis will be largely increased by the erection of the new Tri-State Hotel to be built by the Tri-State Hotel Co., John T. Walsh. president. Contract for the structure has been awarded to the James Alexander Construction Co. of Memphis and the work of clearing the site will begin at once. The building was designed by Jones & Furbinger of Memphis and will be 15 stories high, with 358 rooms.

XUM

ducers-\$1,000,000 Storage Tank Farm Planned.

Mirando, Tex., October 27-[Special.]-Developments in the oil fields of the Rio Grande border region are attracting much attention from some of the larger companies. This is notably true of the Magnolia Petroleum Company which has just announced a program for constructing a large steel storage tank farm and field camps at a cost of approximately \$1,000,000. The recent bringing in of a well of 3000 barrels initial flow and its subsequent increase to more than 4000 barrels a day production by the Kanako Oil Company is regarded as having fully established the existence of a large pool of oil here. The company now has three producing wells upon its Mirando field lease, the first one having a flow of 1500 barrels and the second about 2600 barrels.

South of here about 20 miles and within eighteen miles of the Mexican border is a group of shallow oil wells which have an average production of about eight barrels of high grade lubricating oil a day, from depths ranging from 135 to 180 feet. The Zapata Oil Company of Laredo owns the shallow wells and has 21 under pump. As yet no deep test has been made in that locality but in view of the trend of development toward the south from Mirando it is the opinion of oil operators that all the territory between here and the Rio Grande, about 35 miles, will be explored in due time. In Starr County, about three miles east of the group of shallow wells and owned by the Zapata Oil Company, oil is found in a number of ranch wells and this is taken as an indication that paying production may be obtained there.

Japanese Navy Investigating Mexican Oil Supply.

Monterey, Mexico, October 26-[Special.]-An investigation of the oil resources and over-seas shipping facilities of Mexico is being made by an official commission of the Japanese Navy. In the party are Commander T. Ikeda, Commander M. Gorga, and M. Oyana, chief chemical engineer of the Navy. visitors spent a few days in the Tampico oil fields and were escorted over the producing pools and terminals by officials of the Mexican Petroleum Company and the Continental Mexican Petroleum Company. They were taken on an inpection trip of the loading facilities at Tampico on a launch of the Texas Company. During their stay at Tampico the new tank steamship of the Japanese Government, the Kamoi, which was built by the New York Shipbuilding Company of Trenton, N. J., arrived at the terminals of the Continental Mexican Petroleum Company at Agua Dulce and loaded a cargo of crude petroleum for the Japanese Navy. This tanker took on the Japanese visitors and conveyed them to Vera Cruz from which port they went to Mexico City. It is stated that the Japanese Government has entered into a contract for the purchase of large quantities of Mexican oil for fuel purposes for its Navv.

\$600,000 Lodge Building for Memphis.

Memphis, Tenn., October 27-[Special.]-Contract has been awarded for the erection of the \$600,000 temple which the Al Chymia Temple Nobles of the Mystic Shrine will erect in this city. The building will be 10 stories and basement, of fireproof construction, and will contain 8 floors for offices, in addition to a roof garden, cafe, gymnasium and swimming pool. The ninth and tenth floors will be used exclusively for lodge, club and social purposes.

Construction will begin immediately and the building will probably be completed by the first of September of next year. It will be of brick construction with terra-cotta exterior.

Jones & Furbringer are the architects and Hanker & Cairns the associate architects; the general contract has been awarded to Kaucher, Hodges & Co. Buford M. White is chairman of the building committee.

Rio Grande Oil Developments Attract Larger Pro- Large Developments to Follow Magnolia Petroleum Purchase.

Burkburnett, Texas, Oct. 27-[Special.]-Following the recent purchase of the holdings of R. O. Harvey and associates, situated principally in the Burkburnett and Electra fields, by the Magnolia Petroleum Company the development of the leased acreage on a large scale will be started, it is stated. The consideration was \$2,225,000 and the transaction involved the purchase of nine producing wells with a total output of 1800 barrels a day in the Burkburnett and Electra fields, and about 500 acres of unexploited leases in these two and other fields of North Central Texas.

Will Erect \$200,000 Store at Asheville.

Asheville, N. C., October 26-[Special.]-Plans for the erection of another large store in this city have been announced and it is expected that construction will soon begin. The building will be erected by E. W. Grove of St. Louis for S. Lipinsky Sons & Co. and its cost is estimated at \$200,000. It will be of concrete with wood surface floors, and its dimensions will be 100 by 125 feet, 5 stories. Plans and specifications are being prepared by W. L. Stoddart of New York.

Contract Let for \$278,000 Office Building.

San Antonio, Tex.-Contracts have been awarded for the erection of the 10-story fireproof office building which the Travis Investment Co. will erect. DePuy & Ranney have the general contract at \$278,000. Other contractors include A. H. Shafer who will install the heating and plumbing; Wright Bros., the electric lighting equipment and the Otis Elevator Co., elevators. Herbert S. Green is the architect and W. E. Simpson Co., the engineers.

Ten Story Bank and Office Building for Miami.

Miami, Fla., October 28-Plans for the erection of a ten story bank and office building are being considered by the Miami Exchange Bank according to an announcement by Marshall J. Noble, president, who is also president of the Prudential Finance Corporation. Details for the building have not been given out, but it is understood that contract has been awarded to the McDonald Construction Co. of New York.

New \$200,000 Church for Savannah.

Savannah, Ga., October 25-The Second Presbyterian Church has had plans and specifications prepared for the erection of a \$200,000 building and is considering minor details preliminary to beginning construction. The building will be of limestone, 4 stories, of Gothic architecture and will have an auditorium to seat 1000. The Sunday school rooms will provide accommodations for 1500. N. S. Hamilton of Atlanta is the architect.

Baylor University to Erect \$150,000 Library.

Waco, Tex., October 26-Baylor University will erect a \$150,000 library building and will open construction bids November 8 in the office of Birch D. Easterwood, architect. The structure will be 84 by 100 feet, 4 stories, and fireproof throughout. The exterior walls of the burned building will be utilized.

15-Story Office Building to Cost \$750,000.

Jackson, Miss., October 27-At a recent meeting of the board of directors of the Lamar Life Insurance Co. in this city, it was decided to erect a fifteen-story office building on a site which the company already owns. The building is estimated to cost \$750,000.

er

22.

hich ther ober.

Over

for

d by s 18

Fotal alue

1,000 7,000 0,800 4,000 7,500 1,000 0,000 2,000 2,000 8,000 7,622 2,500 2,000 8,000

0.233

Fotal 7alue 89,500 8,000 2,300 2,500 0,500 8,500 3,000 8,311 2,865 2,500 4,880 2,500 6,287 4,000

6,000 8,643

icke; men seek

harwe a gent

etion etc. the

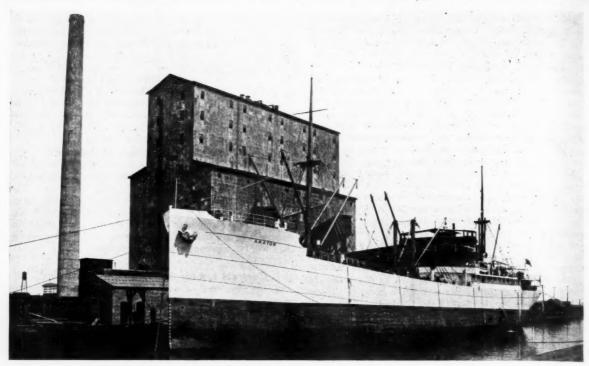
f un-S.

00. phis State

alsh. the the work

s deories

UTILIZING TEXAS PORT FOR GRAIN SHIPMENTS TO EUROPE.



Swedish Motorship Arator loading grain at Elevator A, owned by the Kansas City Southern Railway Co., at Port Arthur, Tex.

\$3,500,000 Power Development on James River.

Scottsville, Va., October 27.—Preliminary engineering work for the power development in the James River which the Big Ben Power Co. will undertake, has been completed. It is estimated that the development will ultimately cost \$3,500,000 and 90,000 horsepower will be provided.

The plant will be constructed in six units and power for the first of these will be obtained by building a 30-foot dam across the James river, four miles above Scottsville. This unit is expected to develop 30,000 horsepower. Four other dams will be constructed across the river at points from two to eight miles below Scottsville for other units. The final unit will be constructed by tunneling the river bluff at the neck of the isthmus formed by Horse Shoe bend.

Expect Larger Crop of Bermuda Onions—To Market by Co-operative System.

Laredo, Tex., October 26—[Special.]—Bermuda onion seed beds are now being planted and in a few weeks the young crop of onions will be transplanted to the irrigated fields. Although there will be no increase of the acreage in the Laredo locality it is indicated by reports from other sections of south Texas that a much larger area will be devoted to the crop than last year. Preparations have been made for marketing by means of the co-operative system. Reports have been received here from Tampico, Mexico, that a large acreage of Bermuda onions are being planted in that part of the Gulf coast region and that they will be marketed chiefly in the United States.

\$250,000 Dwelling Development.

Miami, Fla., October 27.—Wm. F. Whitman, who is developing the Spanish Villa residence section, will erect 16 more dwellings at a cost of \$250,000. Hampton & Reimert will prepare plans and specifications and contracts will soon be awarded.

Lets Contract for \$200,000 School in Atlanta.

Atlanta, Ga., October 26—Contract has been awarded to the Griffin Hodges Construction Co. for the erection of the Formwalt school to cost \$200,000. The dimensions of this building are 60 by 370 feet, 2 and 3 stories. De Ford Smith is the architect and Spiker & Lose the engineers. A. Ten Eyck Brown is the supervising architect.

Houston Art League to Erect Building.

Houston, Tex., October 27.—The erection of a building to consist of four units will soon be undertaken by the Houston Art League of which Dr. Joseph Mullen is chairman of the board of trustees. It is estimated that these units will serve a population of 750,000. At present only one unit will be erected at a cost of \$200,000. The structure will be of Greek architecture and will be built of Texas limestone.

400,000 Pounds of Mohair at 74 Cents.

Uvalde, Tex., October 25—[Special.]—The sale of 400,000 pounds of mohair, concentrated here by the F. A. Piper Company, is announced. The price paid was 74 cents a pound which is the highest of the season. It is understood that the purchaser was a representative of a Boston, Mass. firm.

\$200,000 Office Building Planned.

Atlanta, Ga., October 27—Geo. F. McGlawn and S. W. Bowen contemplate the erection of an eight-story office building to cost \$200,000. The plans as drawn provide from 91 to 95 offices with four stores on the ground floor.

The Inglenook Construction Co. has the contract for erection of a municipal market to be erected at Birmingham, Ala., after plans by J. Martin Lide, architect. It will be 140 by 200 feet with 100 stalls, and with all modern facilities.

l to

the

this

nith

Ten

to

ton

the

rve

he

of

,000

om-

und

the

wen

to.

95

rec-

\la.,

Power Development of Georgia Railway and Power Company on Tallulah and Chattooga Rivers.

By H. M. Atkinson, Chairman Board of Directors, Georgia Railway and Power Co.

The water power development program of the Georgia Railway and Power Company on the Tallulah and Chattooga rivers in Habersham and Rabun counties, Georgia, has been pushed steadily forward since the organization of the company in 1911.

Three huge undertakings in the carrying out of this program, namely, the Tallulah Falls generating station, the Mathis reservoir and the Burton reservoir, in the order named, have been completed and in operation for some years.

The initial installation of the Tallulah Falls generating station consisted of five units of 17,000 horse power. The first of the original five units was placed in operation on September 23, 1913, and the other four at intervals between that date and November 18, 1914, when the fifth unit was started. In 1917 the company started work on the installation of the sixth unit of 17,000 horse power, and this unit went into operation under load on March 12, 1920. Each unit of the Tallulah Falls station had a generating capacity larger than the entire generating capacity of any other hydroelectric generating station in Georgia constructed up to that time, with one exception, and approximately equal to the full generating capacity of the one station excepted. The total installed capacity of the Tallulah Falls plant is 102,000 horse power.

To transmit, distribute and deliver the output of the Tallulah Falls generating station, high tension transmission lines were constructed on steel towers from Tallulah Falls to Atlanta and from Atlanta to Newnan and Atlanta to Rome. Also, a transmission line was constructed down the Georgia Railroad, with various other transmission lines branching off from these trunk lines.

The current from the Tallulah Falls plant now serves 51 municipalities in North Georgia, in addition to hundreds of large manufacturing industries in the territory served, which give employment to many thousands of people.

The Mathis reservoir, the second step in the water power development program of the Georgia Railway and Power Company, was completed on May 12, 1915. The dam forming this reservoir is on the Tallulah River about six miles up from the intake dam of the Tallulah generating station, which latter is about one and one-half miles up the river from the Tallulah Falls generating station. The Mathis reservoir will store 1,369,000,000 cubic feet of water, capable of generating 15,000,000 kilowatt hours of electrical energy at the Tallulah Falls station. When the reservoir is full it forms a lake 9-5/10 miles long, with a shore line of approximately twenty-six miles.

The Burton dam, the third step in the program, is located about fourteen miles up the river from the Mathis dam and about twenty-one miles from the Tallulah Falls power house. The construction of the Burton dam was begun in 1917 and was completed the early part of 1920. The gates of the Burton dam were closed for the first time on December 22, 1919. The storage capacity of this dam is 5,280,000,000 cubic feet of water, capable of generating 55,000,000 kilowatt hours of electrical energy at the Tallulah Falls power house. The Burton reservoir when full forms a lake with a shore line of about sixty-five miles.

The water capable of being stored in the Burton and Mathis reservoirs combined will produce at the Tallulah Falls power house electrical energy equivalent to the available effective energy of 140,000 tons of coal.

The Tugalo development is located on the Tugalo River immediately below the junction of the Tallulah and Chattooga rivers, where the Tugalo is formed and about one and one-half miles below the Tallulah Falls power plant.

This development will consist of a cyclopean masonry dam,

150 feet in height, 1000 feet long, and containing approximately 225,000 yards of masonry.

The power house will be located immediately below the dam and will have an installed capacity of approximately \$4,000 horse power in water wheels. There will be four turbines of 21,000 horse power, each connected to four generators of 12,500 kilowatts capacity each. It is estimated that the average annual output of the Tugalo plant will be 140,000 kilowatt hours.

A new 110,000 volt transmission line of three miles in length will also be constructed to deliver the power from this power plant to the present double circuit 110,000 volt steel tower line now extending from the present Tallulah Falls plant to the city of Atlanta, Atlanta being the central distributing point for the transmission system of the company.

It is expected that the first unit of the Tugalo station will be installed and ready for operation by July 1, 1923, and that the entire installation will be completed by January 1, 1924.

Immediately upon completion of the Tugalo development, the entire output of the plant will be available in the territory now served by the extensive distribution system, aggregating 685 miles of transmission and distributing lines.

Inasmuch as the Georgia Railway and Power Company's transmission lines interconnect with the Central of Georgia Power Company in Atlanta, the Tennessee Power Company at the Tennessee-Georgia State line, the Southern Power Company at Tallulah Falls, the Columbus Power Company at Newnan, and the Alabama Power Company at the Georgia-Alabama state line, the output of the Tugalo plant will also be available, through arrangements for the interchange of power with each of these companies, in the territory served by them in the States of Alabama, Georgia, Tennessee, South Carolina and North Carolina.

The present total developed water power of the Georgia Railway and Power Company is 150,600 horse power. Upon completion of the Tugalo plant, the total developed water power will be 234,000 horse power.

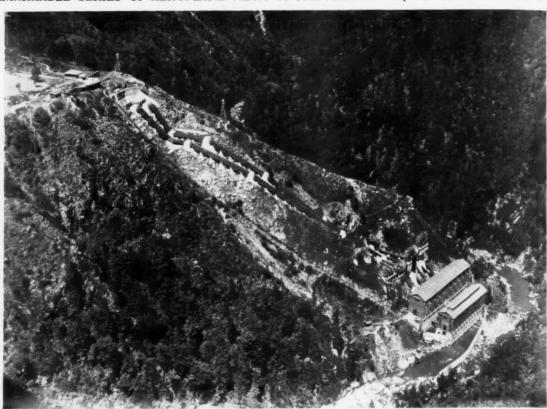
The interconnected transmission lines of the Southeastern power companies connect the transmission systems of seven different water power companies, extending over five states in the Southeast, with total developed electric and steam power of 1,010,355 horse power, and a main trunk line transmission line some 900 miles in length, co-ordinating the rainfall or three separate and distinct water sheds. The Georgia Railway and Power Company system forms the hub of these seven interconnected companies and through it, by a system of relays, it is practicable, as has been and is being done, to utilize the Government steam plant at Sheffleld, Ala., in serving and delivering power at Raleigh, N. C., over 600 miles distant.

According to figures compiled a short time ago by the Railroad Commission of Georgia, Atlanta and the territory served by the Georgia Railway and Power Company had the third lowest average power rate of any city in the United States. These low rates and the additional power capacity that will be available with the completion of the Tugalo development should go a long way toward attracting new industries to Atlanta and North Georgia.

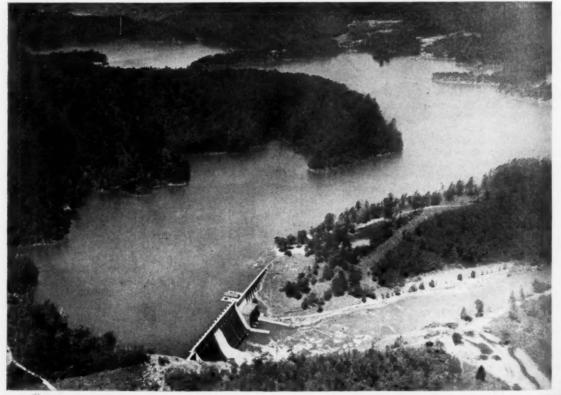
The Georgia Railway and Power Company also owns in addition 303,000 horse power of undeveloped and partially developed water power, and has plans for successive developments of these undeveloped and partially developed water powers. The demand for power is increasing so fast that probably by the time the Tugalo plant is completed another development will have to be started.

SETTI

REMARKABLE SERIES OF AEROPLANE VIEWS OF THE PROPERTIES, DEVELOPMENTS AND SCENIC



Tailuah Falls Power House, 108,000 horse power capacity. From tank on hill top filled from gigantic tunnel leading from Tailuah lake, water is carried through six penstocks, six feet in diameter, to turbines of power house. Back of penstocks are towers carrying 110,000 volt high tension transmission lines to Atlanta and other Georgia points. Incline railway, 1500 feet in length in forefront, offers only method for travel between top of hill and power house.



Comprehensive view of Mathis, or Lakemont, dam and lake, which is Georgia Railway and Power Company's second largest storage reservoir for potential water power. Like the Burton reservoir, this lake abounds in fish.

XUM

CENIC

SETTINGS OF GEORGIA RAILWAY & POWER CO., HABERSHAM AND RABUN COUNTIES, GEORGIA.



Where the wilderness is being conquered to build the Tugalo dam and power house. Here is first of the coffer dams, which has reduced the Tugalo river to half its normal size. This development is fourth in the plans for complete development of Tallulah and Tugalo rivers; to be finished January, 1924; will have 80,000 horse power capacity, adding approximately 50 per cent of the company's water power output.



Mathis, or Lakemont, dam and lake, taken from 5000 foot elevation. Main dam at left, dyke dam at right. Storage reservoir has capacity of 1,369,000,000 cubic feet of water. Circumference of lake about 30 miles.

.



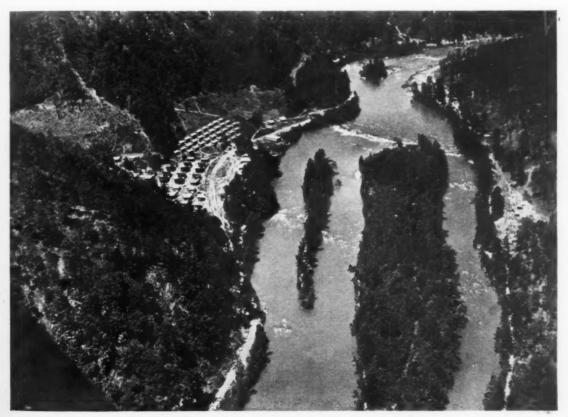
Tallulah Falls lake and 116 foot dam. Railway trestle at left; intake at left for carrying water to Tallulah Falls power house, one mile. Large locomotive could easily run through intake tunnel.



Tallulah Falls dam and lake of Georgia Railway & Power Company, at Tallulah Falls. White spots to right and left are fields under cultivation. Lake backs water up about 7 miles.



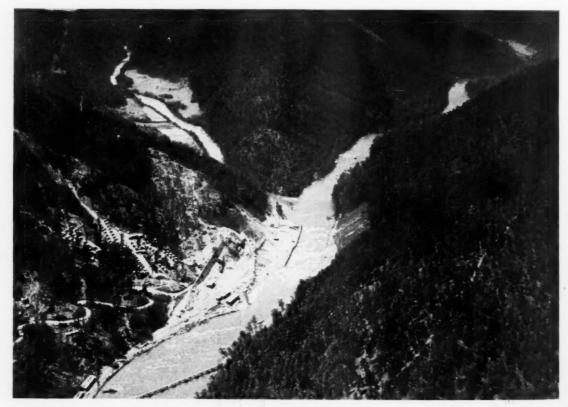
Mathis, or Lakemont, dam and lake, one of the company's giant reservoirs, covering 834 acres. A show place; 1700 feet above sea level. Hillside dotted with summer cottages of well known Georgians. Photograph taken from 3000 foot elevation.



Sheppard's Camp, for white laborers, on Tugalo river, half mile from Tugalo dam and power house. To left, paralleling the river, the 20 mile railroad built by the company from Tugalo Junction to the site of the dam.



Burton lake, covering 2775 acres, 64 miles around, having storage capacity of 5,280,000,000 cubic feet of water; company's main reservoir of stored water power. Dam 116 feet high. Lake covers town of Burton, which the company bought to be flooded. Elevation, 1866 feet above sea.



Site of Tugalo dam and water power development. Tallulah river at upper left, which unites the Chattooga river, (right) to form the Tugalo at the site of the dam, which will be 142 feet high, forming a lake covering 557 acres. Laborers' camp at left.

Iı Dist and tion to b with 110, to 1 trac

> the oil and rest 192

rese T ing able stre

the ma yar 250 ope val

dia the sha dri

mil

Wichita Falls Water Supply and Irrigation Project Now Under Construction.

By R. A. Thompson, Chief Engineer, Wichita Falls, Tex.

In September, 1920, Wichita County Water Improvement District No. 1, which includes the city of Wichita Falls, Tex., and which had been organized as a conservation and reclamation district, voted an issue of \$4,500,000 in bonds, with which to build two dams and a canal system for providing that city with a permanent supply of domestic water, to irrigate some 110,000 acres of fertile land in the Wichita river valley, and to prevent future damage from floods in the valley. Contracts for these structures were let in November, 1921, and the work is now in progress.

Wichita Falls is situated in the heart of the north Texas oil belt made famous by the discovery of the Burkburnett and Electra pools; its population increased, principally as a result of this development, from 16,000 in 1918 to 42,000 in 1922. Its industrial activity increased proportionately with the population, making it imperative that the 1918 water resources be materially increased.

The most practical plan which presented itself for increasing the water supply was to build a reservoir on Wichita river about forty miles west of the city where a very favorable location existed for impounding the flood waters of this stream. Sufficient water will be stored not only to supply the needs of the city, but also to irrigate some 110,000 acres in the valley below.

The storage dam embankment is 7500 feet long, has a maximum height of 100 feet, and will contain 1,500,000 cubic yards. About 3000 feet of this embankment, containing 1,250,000 cubic yards, is now being built with an electrically operated hydraulic dredge. The silt and alluvial soil in the valley above the dam will be pumped in. A power line 41 miles long has been built from Wichita Falls to operate this dredge. Six concrete outlet conduits, each seven feet in diameter and 430 feet long, have been installed to regulate the discharge of the river.

The foundation of the dam rests upon hard, impervious shale. A core wall of Carnegie steel sheet piling has been driven across the stream channel and the valley to cut off the underflow. Seepage under the remainder of the dam will be prevented by a trench cut into the shale, which will be backfilled and puddled with impervious material. The up-

stream slope of the dam will be protected by an 18-inch blanket of heavy stone on 8 inches of gravel,

A concrete spillway is being built in a natural saddle at the north end of the dam, having a capacity of 75,000 cubic feet per second. Emergency spillway will be provided by building two short sections of the dam between concrete walls at a lower excavation than the top, to take care of extraordinary floods. These will have a capacity of 125,000 cubic feet additional.

The storage reservoir will cover 20,000 acres and have a capacity when full of 500,000 acre feet.

The diversion dam is located across the Wichita river some



STORAGE DAM PILE DRIVEN IN OPERATION.

fifteen miles below the storage dam. From this, water will be diverted into the canal system. It is the intention to maintain through the canals an abundant supply at all times in Lake Wichita, which is the present source of water for the city of Wichita Falls. Lake Wichita is an impounding reservoir on Holliday Creek, about six miles southeast of the city, and was built in 1900. It has herebefore furnished sufficient water for the needs of the city.

The diversion dam is located across the Wichita river some have a maximum height of 55 feet, and contain approximately 550,000 cubic yards. A core wall of steel sheet piling containing 2300 tons has been driven across the river valley for

almost the entire length. The core wall trench has been backfilled and puddled with selected impervious material. A concrete spill-way will be built at the south end of the dam, having a capacity of 100,000 cubic feet. The maximum recorded flood is 30,000 second feet.

The south side canal is now under construction from the diversion dam to Wichita Falls, a distance of 34 miles. It will irrigate about 30,000 acres of land. The capacity of the canal for 15 miles to the junction with the north canal, is 1000 cubic feet per second. The contract for the north side canal has not yet been let. It



SITE OF STORAGE DAM

rep abo ope dec but

the

ing

thr

2

nac

of

del

of case rest but dot pri

ter

no

ste

pla

th

ing

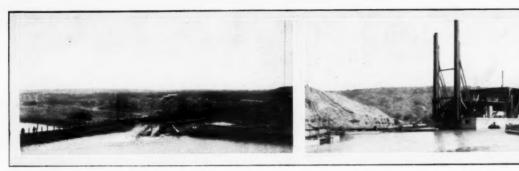
mi

fol

3.3

pip

we up



DREDGE PIPE LAYOUT AT STORAGE DAM.

DREDGE AT WORK AT STORAGE DAM.

will have a capacity of 300 second feet and serve 35,000 acres of irrigable land.

The Holliday Creek canal, which will serve territory south



PILE DRIVING FOR DIVERSION DAM.

and southeast of the city, will be 40 miles long, have a capacity of 400 second feet, and irrigate 45,000 acres.

It is estimated that sufficient water will be impounded in the storage dam to supply all future needs of Wichita Falls and in addition irrigate 110,000 acres of fertile valley and that now lies in the semi-arid belt.

The project is managed and controlled by a board of five directors. J. A. Kemp is president and T. B. Noble vice-president of the present board.

The preliminary plans and surveys were prepared by Vernon L. Sullivan, consulting engineer of El Paso. The Morgan



BLACKBERRY CREEK SUPER-PASSAGE WITH SPILLWAY.

Combination Culvert, Wasteway and Spillway for Canal.

Engineering Company of Memphis, Tenn., are consulting engineers, and R. A. Thompson is chief engineer in charge of construction. A contract for the entire work was let to the W. E. Callahan Construction Co. of Dallas, Tex. David Bros. of Fort Worth, Tex., are sub-contractors on all structures, and the Puget Sound Bridge & Dredging Co. of Seattle for the hydraulic fill of the storage dam. It is estimated that the entire project will be completed by the end of 1923.

Owing to the fact that impounded water must at all times be rigidly conserved for irrigation purposes, it has not been thought economical to attempt to develop any electric power.



GRADING WORK UNDER WAY ON CANAL.



CONDUIT OUTLET AT TOE OF STORAGE DAM.

22.

ca-

l in

alls

and

five

ice.

non

gan

ngi-

eon-

the

res.

for

har

mes

ver.

THE IRON AND STEEL SITUATION

No Change in Production Rate at Pittsburgh—Car Supply Slightly Improved.

Pittsburgh, Pa., October 28—[Special.]—Steel ingot production is at a rate of 36,000,000 or 37,000,000 gross tons a year, representing operation of the steel industry as a whole of about 70 per cent. There has been no material change in the operating rate in the past three weeks. There was a sharp decrease in the latter part of July and throughout August, but the recovery in September was even more rapid.

Car supplies at mills, for shipping finished products, have increased a trifle more. Some assistance in shipping steel has been afforded by consumers having private cars sending them to get their steel. On the whole, shipments are now fully equal to production, while a little has been done in moving stocks of steel previously accumulated. These stocks at mill were never large, the maximum hardly representing three days of production.

Some mills may be a trifle short of coal and some blast furnace groups a trifle short of coke, but in general fuel supply is not a factor in determining the operating rate. The cost of fuel is objectionable, as producers need to be very careful of costs, because a very considerable part of the present deliveries of steel is against orders taken some time ago, at lower prices than have been ruling recently. As a matter of fact profits are decidedly scant now, as seems to be the case in many industries. If present market prices were being realized on all steel shipped the profits would be satisfactory, but the old orders pull down the average, and there is much doubt as to whether mills will be able to realize present prices when the time comes again for an active market.

There is a direct shortage of common labor at many steel plants. The matter of making another wage advance, perhaps 15 per cent, has been seriously discussed of late, despite the fact that there was a 20 per cent advance effective September 1. Unless the progress of the season causes many men to drift to mills from outside work the advance will probably have to be made, although considered unsound from an economic standpoint. The competition of contractors for common labor is very severe.

Basis steel prices are unchanged, and indeed there has been no change in basis prices since early in September, with the exception of last week's advance of about \$4 a ton in welded steel tubular goods. Premiums ruling on bars, shapes and plates, for early deliveries, have been decreasing for more than a month and are now relatively inconsequential, applying only to small lots or particularly early shipment. Premiums on sheets continue important but they do not extend to as late deliveries as formerly. The market is quotable as follows: Bars, shapes and plates, 2.00c to 2.15c; sheets, 3.35c to 3.75c; wire, 2.45c; wire nails, \$2.70; tin plate, \$4.75; hoops, 2.90c to 3.00c according to width and gauge; merchant pipe, 66 per cent basing discount.

In about ten days up to a week ago, Connellsville furnace coke was breaking sharply, from \$12 to \$8. In the past week it has merely softened a trifle. Odd lots can be picked up at \$7.50, while a fair sized tonnage, for shipment over a week or two, would command \$8. Operators ask \$9 on contracts to the end of the year, but might accept \$8.50. By quoting contracts at above the spot market operators appear to believe the market is likely to advance rather than decline, a view not shared by furnacemen, who have the impressive experience of finding it difficult to sell small lots of pig iron for prompt shipment and practically impossible to sell larger lots for extended delivery. It is no longer taken for granted that idle merchant furnaces will all resume as fast as they can pick up coke there being even a possibility that some now in blast may have to go out. Consumers appear to ex-

pect much lower prices and in this they are probably right, but the market may take much more time in getting down than buyers now expect. Foundry is off in the week \$2, being now \$30, valley, while last week's quotations of \$33 for Bessemer and \$30 for basic have been supported by sales in the week at these prices.

Production Maintained at Birmingham — Buying Easier, With Concessions Asked.

Birmingham, Ala., October 30—[Special.]—Furnace interests in the Birmingham district are still confident as to the future of the pig iron market and there is no inclination to break way from the steady position that has been maintained for some time. While the buying now is much easier and consumers are asking for concessions, there is no apprehension of a big deflection. The quotations are still around \$28.50 per ton, No. 2 foundry iron. Reports were current recently that a nice little tonnage was sold on a \$27.50 per ton base but the greater number of replies to inquiries as to the market show that \$28.50 is being done right along and where it is possible to make immediate delivery \$30 is asked and a hundred or more tons sell now and then at that price.

Cast iron pipe makers have been sounding out the market for the lower prices and comments are made in the daily newspapers as to the high prices obtaining for pig iron. On the other hand the furnace interests have been showing how they have been favoring consumers in the home territory and that there has been no inflation and that prices of the product have been the usual result of supply and demand.

But little iron has been sold as yet for 1923 delivery but all indications are that books are to be opened soon and those who are figuring on steady activity next year are casting about a little. Soil pipe makers are not alarmed at the falling off in demand but feel assured that by the turn of the year there will be warrant for production as preparations start for the spring. The McWane Cast Iron Pipe Company, manufacturing a small sized pipe and fitting reports additional orders, Detroit having purchased some of the smaller sizes as did Philadelphia recently. The new plant of the McWane company, under construction in East Birmingham, will be completed by March 1 next. At present the plant of the Southern Pipe and Foundry Company is being used in the manufacture of the 11/2 inch cast iron pipe and fittings. The first unit of the new plant will have a daily capacity of 8000 feet of the smaller sized pipe and employment will be given to 150 men. Later on another unit will be started, the plant to be increased until it is capable of handling a large amount of business that is rapidly growing throughout the country.

Work on the addition to the plant of the National Cast Iron & Pipe Company producers of pressure pipe, will begin soon, the new part of the plant to employ the DeLavaud system in pipe making, they having leased the right to the new method from the United States Cast Iron Pipe and Foundry Company. This company received a letting recently for 300 tons of pipe to be shipped to Hamilton, Mo.

Scrap iron and steel dealers are sitting steady in the boat and watching the trend of events. The territory of these dealers is somewhat limited. As long as the pig iron market remains strong and prices high, there will be call for old material.

Steel mills of the Birmingham district are only intertered with now by the car shortage. Operations are being maintained. The Gulf States Steel Company has four of its open hearth mills in operation and the entire finishing mills. The complaint heard from officials of this company is as to transportation facilities. Warehouses are not so very strongly situated with stock of wire and wire products or other class

XUM

of steel shapes. While no announcement is made, it is understood that the steel rail mill has warrant for steady operation through the balance of the year and at least the first half of next year. There is a little better car service for the delivery of rail, accounted for by the fact that some of the railroads are anxious for delivery on their orders for the product.

Coal production in Alabama is being held down by the short car supply. Production in October will be around 225,000 tons weekly compared with August, when maximum output was reached for two weeks, 400,000 tons each week. Since the Alabama operators agreed to abide by the price regulation on coal as fixed by the state fuel distributor, the government is offering to assist in getting car facilities where there are shipments to be made outside of the state.

Coke producers in this section have reported no recession in demand or price for their product and assert there is need for all coke being produced. Quotations range between \$8.50 to \$10 for foundry coke, the latter price obtaining for spot. Alabama coke is being moved to the Southwest where a big market is said to exist and will be on for a long time. Every preparation has been made to keep the coke production at the present state, with probabilities of an increased output as the bee-hive ovens of the New Castle company are placed in commission again.

Pipe iron and iron and steel scrap quotations follow:

PIG IRON.

No. 2 foundry, 1.75 to 2.25 per cent silicon, f. o. b. furnaces, \$28.50; No. 1 foundry, 2.25 to 2.75 per cent silicon, \$29.00; iron of 2.75 to 3.25 per cent silicon, \$29.50; iron of 3.25 to 3.75 per cent silicon, \$30.50; cent silicon, \$30.50; charcoal iron, f. o. b. furnaces, \$34.00 to \$35.00.

OLD MATERIAL.		
Old steel axles\$	22.00 to	\$23.00
Old iron axles	24.00 to	24.50
Old steel rails	17.00 to	17.50
Heavy melting steel	15.00 to	20.00
	20.00 to	22.00
No. 1 cast	21.00 to	23.00
	20.00 to	20.50
Old car wheels	19.00 to	20.00
Old tramcar wheels	21.00 to	
Machine shop turnings	9.00 to	
Cast iron borings	12.00 to	
Cast iron borings, (chem.)	15.00 to	16.00

Extensive Improvements to American Rolling Mill Company Plant—New Jobbing and Sheet Mill.

Ashland, Ky., October 28—[Special.]—Extensive improvements and enlargements of the plant at Ashland of the American Rolling Mill Company have been started under the direction of Dwight P. Robinson & Co., New York, who have been awarded contracts for the design and construction. The betterments will include a jobbing and sheet mill and galvanizing plant.

When completed the Ashland plant will have a finished system of blast and open hearth furnaces, blooming mill, and sheet and finishing mill for the manufacture of commercial steel products.

Find Coal While Drilling for Oil.

Encinal, Tex., October 24—[Special.]—While drilling a test well for oil on the Santa Catarina ranch, 240,000-acre property, owned by S. W. Forrester of Kansas City, Mo., a 35-foot vein of cannel coal was encountered at a depth of 170 feet a few days ago. Mr. Forrester ordered drilling ceased immediately and a shaft is now being sunk to the coal vein for the purpose of developing the fuel. A number of other test wells will be drilled on the ranch in search of oil. Mr. Forrester purchased the property about two years ago from Charles P. Taft of Cincinnati; it is stocked with thoroughbred cattle, horses, sheep and goats.

The oil industry was founded in 1859 with one producer and a maximum output of 25 barrels a day. At present there are 14,000 individuals and companies producing oil and the average daily output is nearly 1,500,000 barrels.

RAILROADS

Heavy Traffic on the B. & O. Since the Strike,

The statement of the Baltimore & Ohio Railroad Co. for September reflects strongly the severe losses incident to the shopmen's strike and to the abnormal conditions in the bituminous coal fields, where activity was suspended in a great degree from April to September inclusive, but it also shows the rebound after the strike ended. The figures for the month show railway operating revenues, \$13,619,379; decrease as compared with the same month of last year, \$3,849,233; railway operating expenses, \$15,331,852; increase, \$1,767,673; net revenue from railway operations, (deficit), \$1,712,473; decrease, as compared with September 1921, \$5,616,906; net railway operating income, (deficit), \$2,665,952; decrease, \$5,721,488.

"There has been," says the statement, "charged out in September substantially all abnormal expenses and charges growing out of the strike, so that the net earnings of the remaining months of the year should be in normal relation to the business handled."

It is further stated: "The operations for the first six months of the year were most encouraging, as notwithstanding the large decrease in coal traffic because of the coal strike, the gross earnings were about \$98,700,000 and with an operating ratio of 78.74 per cent there was realized a net railway operating income of \$14,580.295, an increase over the same period of 1921 of \$6,949,830. In the ensuing three months the strike of the shopmen and the resulting conditions prevailing bore with particular severity on the Baltimore & Ohio, resulting in an actual deficit in net railway operating income of \$2,089,074, notwithstanding the company maintained operations to a basis of about two-thirds of normal."

Based on the operations for the first half of October it is estimated that the gross earnings for that month will when compiled approximate \$19,000,000 and that the net railway operating income will be over \$3,000,000 as against the deficit of over \$2,660,000 for September. Business is offering in large volume.

The figures of the system for the first nine months of the current year show railway operating revenues, \$140,346,795; decrease as compared with the same period of last year, \$7,0823,979; net railway operating income, \$12,491,220; decrease, \$2,779,977.

Heavy Movement of Freight Increasing.

There were 983,470 cars loaded with revenue freight during the week ended October 14, according to a statement issued by the car service division of the American Railway Association, this showing an increase of 15,301 cars as compared with the previous week, and of 72,941 cars as compared with the same week of last year. Loadings of coal showed an increase of more than 7600 cars for the week, the total loadings of coal being nearly 197,000 cars.

During the week ended October 21, according to a special report from the same source, the loadings of coal totaled 223,411 cars, a further increase of 2660 cars, this establishing another high point in coal transportation.

Car Building Plant for New Orleans.

New Orleans, La., Oct. 30—[Special.]—The first car repair and manufacturing plant south of St. Louis is to be established on the Mississippi river about 20 miles from New Orleans and within its industrial zone. The General American Tank Car Company has bought a 300-acre site adjoining the Island Refining Company at Good Hope, and announces it will begin the erection of the plant very soon. It reports unfilled car orders totalling 10,000.

22.

for

to

the

also

for

79:

\$3,-

ase.

it),

\$5,-

52;

in

298

to

six

ing

ke,

OD-

ail-

the

ree

ons

&

ing

in

11."

is

en

ay

de-

ing

he

15:

7,-

ur-

ed

ia-

ith

an

id-

ial

ed

ng

air

ıb

ew

an

he

ill

ed

Supply and Demand as to Engines and Cars.

According to reports filed with the car service division of the American Railway Association, Washington, D. C., the railroads of the country had on October 1 a total of 44,703 serviceable locomotives, or 538 more than on September 15, the increase being due to the larger number of engines being repaired and also to the receipt of new locomotives. On the same date, (October 1), there were 19,727 locomotives needing repairs, a net decrease since September 15 of 430 locomotives.

The demand for freight cars on October 15 was 156,309 cars more than the available current supply, an increase of 15,057 cars as compared with the previous week, and at the same time there were 4275 surplus cars in good repair scattered throughout the country or 1225 less than on October 8.

To relieve the car shortage and meet the car demands of farmers and others engaged in agricultural pursuits the American Railway Association had ordered railroads operating east of Chicago, St. Louis and Peoria to return immediately all box cars owned by carriers west of those points and they are to be sent West empty, unless loaded for such points. Immediately upon the promulgation of this order one of the large Eastern railroads began making up two trains of empty cars to send westward.

Data issued by the Department of Commerce concerning the activities of car building plants in 1921 shows one of the reasons for the shortage of cars. In 1921 there were built 50,361 cars for steam railroads, whereas in 1919, two years before, there were built 153,288 cars for such lines.

Deal Pending for a Texas Road.

Sugarland, Tex., October 28-[Special.]-W. T. Eldridge of Sugarland, who owns the Sugarland Railroad, the large sugar refinery and other industries here, confirmed the recently published report that he and associates are negotiating for the purchase of the San Antonio, Uvalde & Gulf Railroad and that the transaction is consummated except as to a few minor details. It is probable that Frank Kell and J. A. Kemp of Wichita Falls, who own the Wichita Falls & Southern Railroad, will be associated with Mr. Eldridge in the purchase of the San Antonio, Uvalde & Gulf. The latter runs from San Antonio to Corpus Christi on the Gulf coast, 149 miles, and from North Pleasanton to Carrizo Springs, 114 miles, with a branch line from Crystal City to Uvalde, 41 miles. The road has been in the hands of a receiver for some time. At the time of its construction it was planned to build a branch line from Fowlerton to Rio Grande City, on the Mexican border. Mr. Eldridge is expected to make important improvements and probably extensions to the line if the pending transaction is consummated.

Branch to Important Sulphur Mines.

Angleton, Tex., October 28—[Special.]—Construction of a branch line of the Houston & Brazos Valley Railroad from Clute to Hoskins Mound, 14 miles, will be finished and the line placed in regular operation by the first of the coming year; it will cost \$346,908. This will afford a transportation outlet for the new sulphur mines which are being developed at Hoskins Mound. It is estimated that the gross receipts of the branch line from freight charges on sulphur shipments and supplies for the mines will amount to \$1,077,684 during the next five years.

Proposed Short Line in Florida.

Application for incorporation of the Mid City Railway Co. to build a line from Haines City to Dade City, Fla., about 40 miles, is reported and it is stated that the line, if constructed, will open up a fine fruit raising section which is also well adapted to the production of vegetables, etc. The proposed

capitalization is \$2,500,000 and those interested are Isaac Van Horn, president, Haines City, Fla.; Robert L. Williston, of Northampton, Mass., 1st vice-president; Fred A. Miller, 2nd vice-president; Jed R. Yale, secretary; George D. Langston, treasurer, all of Haines City, where the offices of the company will be located.

New Railroad Financing.

Missouri Pacific Railway has sold to Kuhn, Loeb & Co. \$5,500,000 of 6 per cent first and refunding mortgage bonds, Series D, due February 1, 1949, the proceeds to be used to reimburse the company's treasury for capital expenditures and also to provide for equipment purchases.

St. Louis-San Francisco Railroad has been authorized by the Interstate Commerce Commission to assume obligation and liability for \$6,000,000 of equipment trust certificates to cover its recent purchases of cars and locomotives.

Interstate Commerce Commission has authorized the payment of \$1,000,000 by the Government to the Rock Island Lines in partial settlement of liability growing out of the war control of the railroads.

\$3,000,000 COAL PIER AT SEWALL'S POINT.

Virginian Railway Lets Contract for Modern Structure Near Norfolk.

Norfolk, Va., October 28—[Special.]—Contracts for the erection of the new \$3,000,000 steel coal pier which the Virginian Railway will erect at Sewall's Point near Norfolk have been awarded to the following: Bethlehem Steel Bridge Corporation of Baltimore for the construction of the pier proper; Sanford & Brooks, Baltimore and Norfolk for piling and the construction of the sub-structure, and to the Atlantic Gulf & Pacific Co. of Norfolk for dredging work.

The new pier will more than double the dumping capacity of the Virginian Railway, increasing the entire capacity to more than 12,000 tons per hour. It will be 1073 feet long, 86 feet wide and 74.6 feet high.

With this development the Virginian Railway will enlarge its yards at Sewall's Point to accommodate 260 additional cars to supply coal to the piers. The pier slips are to be dredged to a depth of 35 feet. Instead of lowering the car before being loaded, as is now done, provision will be made for keeping the cars at the top of the pier, and they will be elevated before being dumped.

Traveling towers will also be erected by the side of the pier for conveying coal to vessels below. Plans for the structure were prepared by H. Fernstrom, chief engineer of the Virginian Railway, and it is expected that construction will be completed within a period of two years.

Tennessee Electric Power to Expand.

Chattanooga, Tenn., October 27—[Special.]—The Tennessee Electric Power Co., which was formed by the consolidation of the Chattanooga Railway & Light Co., Tennessee Power Co. and the Chattanooga & Tennessee River Power Co., contemplate important developments soon according to announcement here. The aggregate power at present is 160,000 H. P. of which 113,000 is from water power. Officers of the company are: W. M. Flook, Prest.; C. M. Clark, Vice-Prest. and Chairman of Board, and B. C. Edgar, Vice-Prest. and Gen. Mgr.

\$1,000,000 Improvements to Power Plant.

Ranger, Tex., October 27—The Oil Belt Power Company is reported to double the capacity of its plant on Leon Lake between Ranger and Eastland, at a cost of \$1,000,000. The company supplies electricity to Ranger, Eastland, Breckenridge and other towns in the oil belt. Its present plant has a capacity of 12,000 kilowatts.

GOOD ROADS AND STREETS

Two Contracts for Georgia Roads Total \$330,000.

Atlanta, Ga., October 27—The State Highway Department has awarded contracts for 9 miles of Federal Aid roads from the North Carolina line to Blairsville and for about 8.74 miles of the Atlanta-Newman highway. The former contract involves 90,000 cu. yds. of excavation, 2500 cu. yds. of masonry, concrete and rubble, heavy grading and gravel surface. The work will cost \$100,000. H. W. Morgan of Gainesville is the division engineer and M. H. Gardiner of Columbus, the contractor.

The Atlanta-Newman section will consist of a concrete surface, 6 in. by 18 ft., and will cost \$230,000. E. H. Davis of Griffin is the division engineer and the Davis Construction Co. of Macon, the contractor. W. R. Neel, of Atlanta, is the State Highway Engineer.

\$600,000 Road Contract Let in Florida.

Dade City, Fla., October 25—Pasco County Commissioners have awarded a contract at \$600,000 to the Finley Method Co. of Jacksonville, for the construction of about 35 miles of hard-surfaced and 65 miles of sand-clay roads in Highlands district. The highway from the county line, north of Lacoochee, running south through Trilby, Dade City, Zephyr Hills and joining Hillsborough at Crystal Springs, will be of the Finley method, type C construction, and the road from Dade City via Blanton to the county line near Dixie, known as the Brooksville road will be of the Finley method, type B. All the other roads are to be of clay. The hard-surfaced roads will be 15 feet wide with a 25 foot right of way. It is thought that construction will be completed within a period of ten months.

Missouri to Test Highway Paving Material.

Jefferson City, Mo., October 24—To assure the construction of its good roads system with material that will meet all requirements, the State Highway department is about to inaugurate a bureau for testing such materials. The bureau will be under the direction of F. V. Reagel a chemical engineer and tests will be conducted on cement, asphalt, tar, sand, gravel, stone, brick, felt for expansion joints in paving, paint for bridges, clay pipe, concrete and sheet iron culvert material and other materials used in road construction. A plant will be installed in the basement of the State Capitol and samples taken in the field by highway inspectors will be tested before any of the material is used.

Two Roads in Kentucky to Cost \$374,461.

Frankfort, Ky., October 27—The State Highway Commission has awarded contract at \$338,398 to Metzel-O'Hearn & Lewen, of Covington to construct 12.75 miles of Federal Aid road in Knox and Bell counties. This road will extend from Barbourville to Pineville and will be constructed of rock asphalt on a concrete base.

The commission has also awarded contract at \$36,063 to Alexander Bros., Cadiz, for 2.98 miles of gravel road in Trigg county. This will be a part of the Cadiz-Hopkinsville Highway.

South Carolina Road Contract for \$283,000.

Charleston, S. C., October 27—The County Sanitary Drainage Commission has awarded a contract at \$283,532.22 to the Simons-Mayrant Co. of Charleston for the construction of 9.55 miles of concrete highway in St. Andrew's parish. This road will extend from the St. Johns Island turn-off to the railroad crossing beyond the 21-mile post. Its completion will mean a continuous stretch of concrete from the end of the Ashley River causeway for 18 miles toward Meggetts, Jacksonboro, Walterboro and to Savannah, Ga.

Virginia Road Contracts Awarded.

Richmond, Va., October 26—Contracts for the construction of several sections of roads have been awarded by the State Highway Commission. These include the construction of 1.99 miles of 16-ft. macadam road between Burkes Garden Siding and Tazewell in Tazewell County, the work to be done by J. T. Franklin & Co. of Bassets at a cost of \$31,448. L. J. Chandler, Virginia, secured contract at \$18,502 to construct .93 mile of 12-ft. surface treated macadam road from Greenwich to Milford Mills, in Fauquier and Prince William counties, and at \$29,694 to construct 1.4 miles of the same type of road from New Baltimore to Greenwich.

To Let \$670,000 Road Contract in Missouri.

Jefferson City, Mo., October 25—As a part of Missouri's \$60,000,000 road building program, contract will be awarded soon for the construction of about 18 miles of 18-ft. concrete roadway on primary road No. 1 in St. Charles County. This road will be a continuation of the concrete highway from Wellston to St. Charles. B. H. Piepmeier, State Highway Engineer, states that the award will be made to the Morenos Burkham Co. of St. Louis on its bid of \$670,000.

North Carolina and Virginia to Build Road.

Winston-Salem, N. C., October 25—As the outcome of a good roads rally at Mt. Airy, it is announced that the State Highway Commission of North Carolina will build six miles of road from Mt. Airy to the Virginia state line to connect with a road which the Virginia State Highway Commission will build from Hillsville to the North Carolina line. Details have not been definitely determined, but it is thought that construction will begin promptly.

Two Road Contracts in West Virginia.

Charleston, W. Va., Oct. 26.—The State Road Commission has awarded a contract at \$21,900 to Smith & Quinn, of Parkersburg for the construction of 1.9 miles of the river road from Grape Island to Raven Rock in Pleasant County. Contract has also been let for grading and paving with asphalt three miles of the Welch-Coalwood road in McDowell county. Rogers & Shumway of Worthington secured this contract at \$134,965.

Two Louisiana Road Sections to Cost \$100,334.

New Orleans, La., October 27.—Following its tabulation of bids on four highways, the State Highway Commission awarded contracts for two of these to Hogsett & Co. of Churchpoint at a total of \$100,334.06. They are projects 125-A and B.

Awards Road Contract at \$681,000.

Brownsville, Tex., October 27—Contract for the construction of 20.8 miles of road construction in Cameron County has been awarded at \$681,206.90 to F. P. McElwrath of Corsicana.

Special Edition of Palm Beach Post.

The Palm Beach Post of West Palm Beach, Fla., is to be congratulated on its special edition of 112 pages dated October 22. The entire edition was printed on an 8 page flatbed press within a period of less than six weeks, says the Post, and the issue contains 169,694 lines of advertising. The paper is printed in eleven sections, in addition to comic, rotogravure and feature sections. It is a splendid advertisement of Palm Beach County and the cities of Palm Beach and West Palm Beach

22.

ion

tate

1.99

ing

by

. J.

uct

een-

of

ri's

ded

rete

his

"om

way

eno.

fa

tate

iles

nect

sion

ails

hat

tion

irk-

rom

ract

ree

Ro-

at

TEXTILE

TEXAS SEEKS COTTON MILL DEVELOPMENT.

West Texas Delegation on Tour of South Carolina and New England to Gather Textile Facts—Hope to Establish Many Cotton Mills as Result.

Lubbock, Tex., October 23—[Special.]—An investigation of the textile industry of South Carolina is now being made by a delegation of business men of west Texas with a view to bringing about the establishment of not less than thirty cotton mills in this part of the state within the next twelve months. For some time the movement to interest capital in the manufacture of cotton fabrics in the cotton growing territory of west Texas has been in progress. It is stated that in a number of communities local business men stand ready to subscribe liberally to such companies.

In the party which is now visiting the South Carolina mills is Herbert Jones, general manager of the Post-Texas Cotton Mills of Post, Tex. When this plant was established far out in the western part of the state several years ago doubt was expressed as to its success. It is said to have been a profitable undertaking from the beginning. According to Mr. Jones conditions there are ideal for operating cotton mills. The introduction of cotton to the more altitudinous region of west Texas took place only a few years ago, but is is now the principal crop of farmers in a large scope of the former rance territory.

It is the purpose of the delegation after attending the Southern Textile Exposition at Greenville, S. C., to tour that state, then proceed to New England where it will make further investigations in the manufacture of cotton fabrics. Upon their return home the investigators will make an exhaustive report on the results of their research work to be laid before the people of the different towns interested in the establishment of cotton mills. A united and concerted effort by these communities will then be made to bring the projects to a state of realization.

200,000 Pounds of Texas Mohair Sold.

Lampasas, Tex., October 24—C. D. Stokes of Lampasas, representing Winslow & Company of Boston, has just purchased from the Shreiner Wool and Mohair Company 200,000 pounds of mohair at 68 cents a pound. This is a record price of the season, the next highest price being 67 cents.a pound which was received by Oscar Appelt of San Angelo for 10,000 pounds. It is stated that most of the fall Angora goat shearing in Texas is finished and that the quality of the clip is unusually good. There is sufficient grass on the range to carry the goats through the winter without feeding but rainfall is needed to fill the water holes.

Plan to Rebuild Plant.

Athens, Ga., October 27—Steps have been taken to rebuild the plant of the Mallison Braided Cord Co., which was damaged by fire to the extent of \$150,000. The buildings containing the weaving and braiding machinery were destroyed, with the equipment, and these will be replaced along more modern lines.

Purchases Goodson-Howard Cotton Mills.

Helena, Ark., October 26—Arthur H. Lowe of Fitchburg, Mass., principal owner of the Delta Land Co., has purchased the Goodson-Howard cotton mills at Helena and will resume operations for spinning yarns. Plans are also being considered for installing looms and dyeing departments to produce ginghams.

British Cotton Exports.

Manchester, October 13—[Special.]—The value of cotton yarns and manufactures shipped from the United Kingdom during September, 1922, was £16,395,648, out of a total of £48,361,209 for manufactured articles of all kinds. For the nine months to the end of September the figures are £140,020,-847 and £425,514,247, respectively.

Cotton cloth alone accounted for £12,674,715 during September, the total square yardage being 395,823,900, whilst for the period January to September 3,068,278,700 square yards, worth £106,637,069 were exported. The principal markets, with the amount of the shipments for the nine months ended September shown in thousands of square yards, were Bengal, Assam and Orissa 577,308, Bombay 271,249, China 249,334, Australia 177,431, Egypt 155,857, Argentine Republic 111,757, Switzerland 137,019, Germany 88,170, Mesopotamia 73,952, United States of America 72,881, Turkey 64,201, British West Africa 63 470.

Altogether 16,794,000 lb., of cotton yarn, valued at £2,103,-115, were consigned abroad during the month, bringing the totals this year to the end of September to 158,363,900 lb., and £20,763,425, respectively. The exports to the chief outlets for the period January to September, with the quantities shown in thousands of lb., were: Netherlands 48,058, Germany 26,984, Bombay 18,554, Switzerland, 6803, China 5959, Belgium 4177, United States of America 3571, Argentine Republic 2058.

Galveston to Be Concentration Point for Wool.

Galveston, Tex., October 27—[Special.]—As a result of the new concentration privileges allowed on interstate traffic from Texas points, arrangements have been made for storage space for approximately 15,000 bales of wool in warehouses here. It is explained that with the new tariffs now in effect on wool and mohair, Texas growers will be able to hold their product at Galveston instead of shipping it to Boston for concentration, as in the past. The new tariff states that one stop will be allowed in transit, but gives a second concentration privilege on carload shipments at an additional charge of 7 cents per 100 pounds, plus back haul, if any.

It is asserted by local warehouse men that so far there have been no heavy inquiries regarding concentration of wool or mohair at this point, but it is expected ultimately that large quantities of these commodities will be stored here. Most of the wool from the Southwest moves through Galveston for coastwise shipment to the Atlantic seaboard. This movement averages about 30,000,000 pounds a year, it is stated. Sheep are clipped twice a year in the Southwest, and after each of these clippings the movement through Galveston is heavy. The second clipping season has just begun.

Cotton Mill Increasing Its Housing Facilities.

Williamston, S. C., October 25—To meet its need for greater housing facilities, the Williamston Mills are erecting eight cottages in its mill village. The company is operating 32,256 spindles and 750 looms, its product being print cloths. Not in a period of six years, it is stated, has the machinery of this mill been at a stand-still except on Sundays and holidays. It operates day and night shifts, employing a total of about 500 hands.

Lola Gingham Mills to Erect \$250,000 Plant.

Stanley, N. C., October 26—A textile plant for the production of ginghams, checks and colors will be erected by the Lola Gingham Mills, Inc., which has awarded contract to J. A. Gardner of Charlotte for the erection of the building. This structure will be 100 by 260 feet, fireproof, and will cost \$250,000. The installation will consist of 250 Crompton & Knowles automatic looms. Machinery contracts also have been awarded.

tion sion of ects

has

ana.

be ober tbed Post, aper

alm

alm

VIIM

LUMBER AND BUILDING MATERIALS

Profits from Second Growth Longleaf Pine.

That there are millions of acres in the Southern states that will become valuable to the owner and the state only by the growing of pine timber is the statement made in a publication just issued by the United States Department of Agriculture, dealing with profits that may be obtained from second growth longleaf pine.

The protection and reforestation of these lands, it is pointed out, mean permanent industries, permanent homes, good roads, and good schools. Destructive lumbering and destructive fires are every year creating in the Southern pine region millions of acres of waste and barren lands. In these idle timber lands is an enormous potential wealth and their productive power is not fully realized.

The bulletin explains how these idle, slacker acres can again be made productive, contributing their share toward the wealth of the community and to the pocketbook of their owner. It presents full information on the growth and value of longleaf pine, methods of producing timber and turpentine, and outlines the cutting and protection systems best adapted to this species.

Copies of the publication, which is the work of Wilbur R. Mattoon of the Forest Service, may be had free by applying to the Department of Agriculture, Washington, for Department Bulletin 1061, entitled "Longleaf Pine."

Pine Shipments Exceed Orders for Week.

New Orleans, La., October 26—[Special.]—In its report for the week ended Friday, October 20, the Southern Pine Association shows that pine shipments amounted to 60,393,190 feet, carried on 2690 cars, as compared with orders for 2384 cars aggregating 53,523,184 feet for the preceding week,

Orders on hand at the beginning of the week totaled 17,886 cars or 401,558,586 feet, and at the end of the week, 17,580 cars or 394,688,580 feet. Shipments fell below production for the week to the amount of 17.82 per cent, while orders were below production 27.17 per cent, and below shipments 11.38 per cent.

Summary of Report from 127 Mills.

Orders on hand beginning of week	Cars. 17,886 2,384	Feet. 401,558,586 53,523,184
Total Shipments during week	20,270 2,690	455,081,770 60,393,190
Orders on hand end of week	17.580	394.688.580

More Cars for Lumber Shippers.

Memphis, Tenn., October 27.—Information has been received from Washington by the Southern Hardwood Traffic Association to the effect that the Interstate Commerce Commission has ordered the delivery of an increased number of cars to relieve the transportation situation in the hardwood industry. It is stated that several weeks must elapse before relief is at hand, and many hardwood operators are doubtful as to the

adequacy of the relief when it does come, but officers of the association are hopeful that many cars which have been used recently for the movement of cottonseed will be available for lumber loading.

Lumber Production Expanding Throughout Country.

Washington, Oct. 26—[Special.]—The lumber mills of the country whose statistics of production, shipments and orders are summarized weekly by the National Lumber Manufacturers Association, reported the high mark of production for the year in the week ending Oct. 21. Due chiefly to the West Coast Lumbermen's Association's increased production, the reported output for all associations went to 255,631,879.

This was the product of 417 mills, the largest number reporting so far this year and a net gain of twenty over the preceding week, while the volume of production gained a little more than 5,000,000 feet. Shipments, too, showed a small gain of about 9,000,000 feet, though still low, but orders were virtually stationary.

Interior mills generally report further declines in shipments, the net gain being due chiefly to mills tributary to marine transportation. Altogether production last week exceeded shipments by 61,000,000 feet and exceeded orders by 60,000,000 feet. Both shipments and orders are far below last year, while production is nearly a half larger.

All the reporting mills of eight regional associations when totaled give their shipments as 76 per cent and their orders as 73 per cent of production. The 381 mills of five associations with an established normal production for the week of 241,800,946, show an actual production of 235,903,593, or 98 per cent of normal, and their shipments were 74 per cent and orders 72 per cent of normal. Generally speaking the disparity between shipments and orders on the one hand and production on the other reflects the effects of limited transportation facilities rather than receding business activity. Production is being forced in response to potential lumber requirements while shipments and orders decline in consequence of car shortage. The following figures summarize the lumber movement for the last two weeks and the week of 1921 corresponding to the past week:

	Last Week	Same Week Last Year	Preceding Week
Production	255,631,879 194,684,485 186,070,409	$\begin{array}{c} 183.940.316 \\ 212.143.583 \\ 209.564.025 \end{array}$	250,269,974 185,904,789 185,917,445

For the first 42 weeks of the year the lumber movement figures of all eight associations show great advances over the same weeks of 1921, as follows:

1922 1921		Production 9,145,493,096 6,552,732,558	Shipments 8,719,030,027 6,585,990,373	Orders 9,297,983,023 6,845,610,257
1922	Increase	2,592,760,538	2,133,039,654	2,452,372,776

Herewith is a detailed report by regional associations of the lumber movement for the week and year so far compared with corresponding periods of last year:

LUMBER MOVEMENT FOR 42 WEEKS, AND FOR THE WEEK ENDING OCTOBER 21.

	Production		Ship	ments	Orders	
Southern Pine Association, Total	$\substack{1922\\3,072,141,230\\73,487,695\\3,494,402,391\\110,215,013\\979,732,000\\33,939,000}$	19 21 2,914, 838,279 77,701,748 2,167,219,909 68,414,562 611, 904,082 13, 917,000	$\substack{1922\\2,956.089,039\\60,393,190\\3,311,986,129\\81,417,272\\1,020,409.000\\20,977,000}$	$\substack{1921\\3,058,102,397\\96,628,352\\2,268,825,776\\68,465,136\\569,508,728\\20,298,000}$	$\substack{1922\\3,114,066,165\\53,523,184\\3,346,730,418\\82,533,162\\1,033,425,000\\20,075,000}$	1921 3,112,881,817 93,434,924 2,321,762,205 76,444,223* 576,625,000 20,750,000
California White and Sugar Pine Manufacturers Association, Total. Week (6 mills) California Redwood Association, Total. Week (14 mills) North Carolina Pine Association, Total. Week (36 mills) Northern Hemlock and Hardwood Total. Week (20 mills).	424,467,000 7,959,000 326,173,000 9,584,000 392,552,630 8,677,885 85,529,000 2,330,000	277,768,000 5,094,000 234,306,000 7,704,000 262,795,288 9,838,006 83,901,000 1,271,000	282,378,000 5,134,000 290,941,000 5,345,000 395,911,839 10,397,302 118,321,000 2,072,000	198,515,000 6,311,000 163,442,000 6,964,000 250,840,472 10,399,095 76,756,000 3,078,000	650,007,000 2,411,000 309,538,000 7,599,000 395,219,440 9,608,063 108,550,000 1,866,000	369,681,000 2,817,000 145,954,000 1,069,000 248,401,235 11,200,878 70,305,000 3,848,000
Northern Pine Manufacturers Association, Total Week (10 mills). General Total for 42 Weeks. General Total for week.	370,495,845 9,439,286 9,145,493,096 255,631,879	6,552,732,558 183,940,316	342,994,020 8,948,781 8,719,030,027 194,684,545	6,585,990,373 212,143,583	340,447,000 8,455,000 9,297,983,023 186,070,409	6,845,610,257 209,564,025

22.

the

sed

ble

the lers facfor the ion, 879. rethe d a lers

to

reek

by

low

hen

lers.

cia-

of 98

and

dis-

and

ang-

ity.

nber nse-

the

of

ling

,974 ,789 ,445 nent

,023

,776

ions

om-

Shipments Exceed Orders by 1,788,794 Feet.

Norfolk, Va., October 27.—The report of orders, shipments and production of the North Carolina Pine Association for the week ended October 21, shows that shipments for the week reached a total of 13,005,107 feet and the orders, 11,216,-313 feet. The production amounted to 10,816,139 feet, the average per mill being 226,274 feet.

The following report is compiled from figures supplied by 48 mills:

	Total Feet	Average Per Mill Feet
Orders	11,216,313	233,673
Shipments	13,005,107	270,939
Production	10,861,189	226,274
Normal Production	14,814,000	308,625
		Per Cent
Orders Below Shipments	1.788.794	14
Orders Above Actual Production	355,124	3
Shinments Above Actual Production	2,143,918	19 24 12
Orders Below Normal Production	3,597,687	24
Shipments Below Normal Production	1,808,893	12
Actual Production Below Normal	3,952,811	27
Increase in Orders Compared with Last		
Week	2,555,280	29

Manufacture of Sand-Lime-Brick for 1921.

The Department of Commerce announces that the census reports show considerable decrease in the activities of the establishments engaged in the manufacture of sand-lime brick during 1921 as compared with 1919. The total value of products reported amounted to \$1,116,797 in 1921 and to \$1,663,052 in 1919, a decrease of 32.8 per cent.

Six establishments, with products valued at \$315,605, which reported at the previous census are not included in the 1921 figures for the following reasons: 3 were out of business; 1 was idle; and 2 had changed the character of their products and were assigned to other industry classifications. Of the 25 establishments reporting for 1921, 7 were located in Michigan; 2 each in Florida, Indiana, Minnesota, New York, and Wisconsin; and 1 each in Georgia, Louisiana, Massachusetts, Ohio, Pennsylvania, South Dakota, Tennessee, and Texas.

The combined output of all establishments was only approximately 49 per cent of the maximum capacity, based upca a demand requiring full running time.

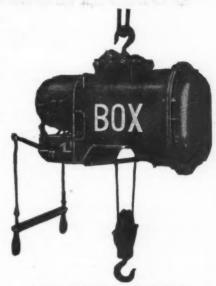
MECHANICAL

A Handy Electric Hoist.

A new electric hoist known as the "Load Lifter" and made for use with either hook or trolley suspension, is of modest dimensions, being only eleven inches wide and twenty-eight inches long, but it is built for hard, continuous service and it retains what might be termed standard construction details of heavy duty, large capacity traveling cranes built by the same manufacturers Alfred Box & Company, Inc., Philadelphia, Pa. The firm's engineers thought that this hoist would probably open up a field for power lifting in industries where mechanics were not ordinarily available to maintain equipment, and they designed it so as to make it so simple in construction and to need so little attention that it could be safely used by one person.

The hoist is automatically lubricated by a combination of the splash and the forced feed systems; it is only necessary to supply it with oil at one point and then only about once in six months. It is wholly enclosed, everything being dust proof, it may be installed anywhere, and it is highly efficient. Every bearing is supplied with either roller or ball bearings and the gearing is of forged steel and heat treated, spur gears with stub teeth being used and the shafts are

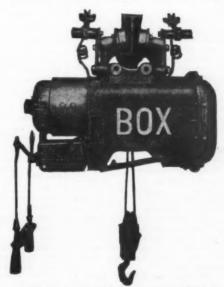
of manganese steel. There are no adjustments to be made. There is a multiple disc roller ratchet load brake and a band brake on the motor shaft. The controller is basically of the



HOIST WITH HOOK SUSPENSION.

drum type; it has non-arcing fingers, and it is completely insulated. The cover is hinged for inspection.

The I-beam trolleys are adjustable to run on either 5, 6, 7, 8, or 9 inch standard I-beams and the hoist frame is arranged so that the trolleys may be mounted on any hoist so that it will hang parallel with the beam or at right angles to the beam. This change may be made in the field, the



HOIST WITH TROLLEY SUSPENSION.

only tool needed being a wrench. Being also arranged for hook suspension the hook may be applied to any hoist in the field, only a wrench being required, and this method of suspension is interchangeable with the trolley suspension.

The hoist is built in one frame only and is rated to fift 1000 pounds on a two part line at 20 feet per minute, or 500 pounds on a single part line at 40 feet per minute. The standard rope drum accommodates nearly 80 feet of rope.

XUM

Construction Department

EXPLANATORY

Additional information is published about all enterprises mentioned in this department as soon as such data can be obtained. Further facts about any incomplete or incorrect item reported in these columns are always appreciated.

DAILY BULLETIN

The Daily Bulletin is published every business day to enable its subscribers to follow up promptly the industrial, commercial, railroad, financial, building and general business development of the South and Southwest. To machinery manufacturers and dealers, contractors, engineers, and others who require daily information of every new enterprise organized and details about important, additions to enterprises already established, the Daily Bulletin is invaluable. Subscription price, \$20.00 a year.

Bridges, Culverts and Viaducts.

Fla., Jacksonville—Duvall County Commrs., Chas. A. Clark, Chrmn., plans following:

Constructing 12-ft. wooden bridge over Julington Creek on Bryant road, with necessary culverts and repairing of Adams road. (Lately noted.)

Make fill at each end of Cedar Springs bridge; C. S. Coe, County Engr.

Fla., Pensacola—Escambia and Santa Rosa County Commrs. plan building bridge over Escambia River, between 2 counties; 12,700 lin. ft. of fill; 30 or 40-ft. crown, protected by Wakefield sheet piling; 700 lin. ft. steel structure, including drawbridge; 4000 ft. creosoted timber trestle; 20-ft. roadway; Winston I. Wheat, County Engr. (Lately noted.)

Fla., West Palm Beach—Palm Beach County. For full details see Mchy. Wanted,—Bridge Construction.

Fla., West Palm Beach—Palm Beach County Commrs., Hector Harris, Chrmn., plans building draw-bridge over West Palm Beach canal on Military Trail; \$14,000 available.

Ga., Macon—City will repair 2 bridges. For full details see Mchy. Wanted—Bridge Repairing.

Ky., Morehead—State Highway Comsn., Frankfort, Ky., plans building bridge over rriplet Creek, on Midland Trail between Morehead and Carter County line; 100-ft. steel span; 20-ft. roadway; concrete floor; concrete or cement rubble abutments; bids opened in November.

La., Algiers—Southern Pacific Ry. and Algiers Street Ry. Co., plan reconstructing Newton St. viaduct; \$60,000 to \$70,000.

La., Natchitoches—For full details see Mchy. Wanted—Road and Bridge Construction.

La., Ruston—Louisiana Highway Comsn., Baton Rouge, La.—For full details see Mchy. Wanted—Bridge Construction.

Miss., Natchez—Adams County, Board of Supvrs., will build 3 bridges. For full details See Mchy. Wanted—Bridge Construction.

Missouri—State Highway Dept., Jefferson City, Mo., plans building following bridges: Atchison County, State Project, Route 61.

Sec. 4, on State road from Fairfax to Tarkio. Sta. 93 plus 65; 40-ft. reinforced concrete deck girder span; 20-ft. roadway; 2 rein-

forced conncrete abutments.

Sta. 405 plus 40, State Project, Route 1,
Sec. 7, over Tarkio River; 140-ft. high steel
truss span; concrete floor; 20-ft. roadway;
20-ft. reinforced concrete slab approach span
at each end; 2 reinforced concrete piers; 2

reinforced concrete pile bents.
Sta. 477; 20-ft. reinforced concrete slab
span; 20-ft. roadway; 2 reinforced concrete
abutments; N. R. Sack, Div. Engr., Ballinger
Bldg., St. Joseph, Mo.

Carter County, State Project, Route 16, Sec. 73, on State road from Elsinore to r-oplar Riuff Sta. 94 plus 55, over South Fork of Cave Creek; 50-ft. steel truss; concrete floor; 2 mass concrete abutments.

Sta. 9 plus 25, over North Fork of Cave Creek; three 15-ft. concrete slab spans; 20ft. roadway; 2 mass concrete abutments; 2 concrete plers; J. H. Long, Div. Engr., Willow Springs, Mo.

Clark County, State Project, Route 9, Sec. 7, on State road from Wayland to Canton.

Sta. 192 plus 00, over Sugar Creek; 60-ft. steel truss span; concrete floor; 20-ft. road-way; four 15-ft. reinforced concrete slab approach spans; 2 concrete plers; 4 reinforced concrete nile bents.

Sta. 88 plus 50, over Fox River; 100-ft. high steel truss span; concrete floor; 20-ft. readway; four 20-ft. reinforced concrete slab approach spans; 2 reinforced concrete piers; 4 reinforced concrete pile bents. Harry D. Kuffich, Div. Engr., Hannibal, Mo.

Jackson County, State Project, Route 2, Sections 2 and 3, on State road from St. Louis to Kansas City, Primary.

Sta. 276 plus 40, over East Fork of Little Blue River; 60-ft. low steel truss span; 20ft. roadway; concrete floor; 20-ft. reinforced concrete slab approach span at each end; 2 reinforced concrete piers; 2 reinforced concrete bents.

Sta. 237, over Little Blue River; 100-ft. high truss steel span; concrete floor; 20-ft. roadway; 50-ft. low truss steel approach span; 2 reinforced concrete piers; 2 reinforced concrete abutments. A. C. Lingley, Div. Engr., Reliance Bldg., Kansas City, Mo. Scotland County, State Project, Route 15,

Scotland County, State Project, Route 15, Sec. 54, on State road from Memphis to Edna.

Sta. 26 plus 35, over Williamson Creek; 20-ft. reinforced concrete slab span; 20-ft. roadway; 2 reinforced concrete abutments; Harry D. Griffith, Dlv. Engr., Hannibal, Mo.

Mo., Excelsior Springs—City plans building concrete bridges across Fishing River, and improving Siloam Springs; vote Nov. 14 on \$14,000 bonds. Address The Mayor.

Mo., Kansas City—Mayor Cromwell contemplates building viaduct on 6th St. from Walnut to Wyandotte Sts.; 32-ft. roadway.

Mo., St. Louis—State Highway Dept., Jefferson City, Mo., plans building bridge on State road from St. Louis to Springfield, Primary; Sta. 7 plus 29, over Fox Creek; two 20-ft. reinforced concrete slab spans; 20-ft. roadway; concrete pier; 2 reinforced concrete abutments; St. Louis County, State Aid Project Route 14, Sec. 76; S. M. Rudder, Div. Engr., Bristol Bldg., Webster Grove, Mo.

Mo., Skidmore—Nodaway County Court plans building bridge south of Skidmore; Skidmore-Maitland Drainage Dist. will appropriate \$4000; County Court will furnish balance

North Carolina—State Highway Dept., Raleigh, N. C., received bids for following projects:

254—Lenoir-Pitt Counties, over Contentnea Creek near Grifton; low bidder, Roanoke

Bridge & Iron Co., Roanoke, Va., at \$64, 942.10.

294—Wilson County, over Black Creek, near Black Creek Station; low bidder, Stearnes Bros., at \$14,343.45.

N. C., Shelby—Cleveland County Commrs. R. L. Weathers, Clk., let contract to Zeb. Weathers & Son, Shelby, at \$11,800 for 324-ft. steel bridge across Buffalo Creek, on state line between Cleveland County, N. C., and Cherokee County, S. C. (Lately noted.)

Tennessee—State Highway Dept., Nashville, Tenn., will build 2 steel and concrete bridges. For full details see Mchy. Wanted—Bridge Construction.

Tex., Austin—Travis County will build steel span bridge. For full details see Mchy. Wanted— Bridge Construction.

Tex., Lagrange-For full details see Road and Street Construction.

Tex., Linden-For full details see Road and Street Construction.

Tex., Rockwall—Rockwall County, J. K. Wells, County Judge, plans expending about \$10,000 to construct several concrete bridges; John Focht, County Engr.

Va., Martinsville—State Highway Dept., Richmond, Va., let contract to Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa., at \$8002.01, to construct bridge over Beaver Creek, on road from Daniels Creek to Martinsville; 113 ft. 4-in. long; 3 reinforced concrete spans; Henry County, Project 170, Route 3. (Lately noted.)

Va., Richmond—Boulevard Bridge Corp., Stuart McGuire, Prest., will construct steel and concrete bridge over James River, from Richmond to Chesterfield County; 20-ft. road-'ay; 5-ft. sidewalks; \$175,000. (Lately noted.)

Canning and Packing Plants.

Fla., Wauchula—Albert Carlton will rebuild packing plant burned at loss of \$20,000.

Ga., Thomasville—Waycross Packing Plant, Waycross, will remove plant to Thomasville.

Clayworking Plants.

Va., Hopewell—Hopewell China Corp., will construct 2 additional kilns.

Coal Mines and Coke Ovens.

Ky., Middlesboro—Easter Coal Co., capital \$20,000, incptd. by R. L. Smythe, Saint Paul, Va.; P. Brashear and John Howard, both Middlesboro, Ky.

Ky., Pineville—Moss-Federal Coal Co., capital \$50,000, incptd. by M. J. and M. H. Moss, and M. J. Moss, Jr.; leased mines of Federal Coal Co., involves about 3000 acres.

Ky., Whitesburg—J. L. McCormick, Representative of Mineral Development Co. Philadelphia, Pa. reported to lease coal lands for development.

Md., Cumberland—Elk Run Coal Co., capital \$50,000, incptd. by James W. Morris. George L. and Charles D. Shaffer.

84,-

nple:

ar.

eh

24-

and

ille.

teel

chy.

bad

and

bout

ges;

ept..

rgh-

, at

Mar-

170

orp.

steel

from

road-

ted.)

re-

.000.

lant ville.

will

apital Paul,

both cap-

Moss.

ederal

Rep-Co., lands

cap

forris.

ì

W. Va., Bluefield-Elkhorn Coal Gas Co. increased capital to \$250,000.

W. Va., Clarksburg-Tygarts Valley Fuel Co., capital \$100,000, incptd. by E. M. Pendergast, James G. Kidwell and Jacob Black.

W. Va., Welch-Pocahontas Coal Co., capttal \$50,000, incptd. by J. W. Strickler and W. J. Hatfield, Welch; G. R. Hairston, laeger, W. Va.

Concrete and Cement Plants.

Tex., Gonzales—Gonzales Cement Works, A. O. Neuman, Propr. will erect 2 story, 50x 88-ft. and 1 story, 40x50-ft, buildings, fire-proof walls and roof; \$15,000; construction by owners; install power mchy, for mfre, of by owners; instail power inchy, for infe. of concrete roofing tile, sewer and building tile, face brick and floor tiling. Lately noted. (See Mchy. Wanted—Motors (Electric); Engines (Oil); Elevators; Sprays (Fog); Handling System.)

Cotton Compresses and Gins.

8. C., Donalds—Donalds Ginnery, capital \$15,000, incptd. with L. J. Davis, Prest.; J. W. Brook, V.-P.; W. M. Agnew, Secy.

Tex., Bells-Bells Gin Co., P. H. Luby, Prest. will rebuild gin burned at loss of \$30, 000; 22x70 ft.; mill construction; install \$15,000 cotton ginning mchy.; T. M. Reed, Const. Engr., Bells, Tex.

Drainage Systems.

Fla., Ft. Lauderdale-International Sugar Corp., Howard L. Allen, Gen. Mgr. let contract to Chase Motors Co., Miami, Fla., to furnish equipment and material for drainage work in connection with development of 4000 acres sugar cane land; James H. Zeering, Drainage Engr., Miami; Herbert Stackhouse, Field Supt.

La., Lake Providence-Tensas Bayou Drainage Dist. For full details see Mchy. Wanted -Drainage.

Miss., Marks-Squirrel Lake Drainage Dist. of Quitman Co. let contract to Bemidji Drainage Co., Memphis, Tenn.; work requires 80,000 ca. yds. earth excavation, clearing right of way for new ditches; reclaiming about 3000 acres; Morgan Engineering Co., Engr.

Miss., Sledge-Pompey Lake Drainage Dist. opened bids for clearing the prongs of Thompson Bayou in Quitman County; W. R. Wallis, County Engr., Marks, Miss.

Mo., Maryville-Jackson Township Drainage Dist., Nodaway County let contract to W. A. DeLong & Co., Des Moines, Iowa to construct 1 main and 8 lateral open ditches;

Clark E. Jacoby Engineering Co., Engr., Shikert Bldg., Kansas City, Mo. (Supersedes recent item.)

Mo., Pattonsburg-Hope Drainage Dist. For full details see Mchy. Wanted-Drainage.

Tex., Houston-Harris County Commrs. will probably create Drainage Dist. No. 12; contemplate voting on \$450,000 bonds. (Previously noted.)

Electric Light and Power Plants

Ala., Birmingnam—For full details see Water Works.

Fla.. Apalachicola-City let contract for equipment to electric plant as follows: Skin-ner Engine Co., for 2 Universal uniflow engines; General Electric Co., for two 150 K. W. A alternators and 4 panel switchboard; De-Laval Co. for motor driven centrifugal pumps; W. G. Eager, Conslt. Engr., Valdosta, Ga. (Lately noted receiving bids.)

Fla., Bradentown-For full details see Land Developments.

Fla., Clearwater-For full details See Fla., St. Petersburg.

Fla., Groveland-For full details see Water

Fla., Macclenny-Macclenny Electric Co., J. A. Rowe, Mgr. will improve plant. Ga., Columbus—Columbus Electric & Power

R. M. Harding, Mgr., contemplates expending \$250,000 during 1923 in hydro-electric development and construction of transmission lines.

Fla., St. Petersburg-Tide Water Power Co., A. E. Fitkin, Prest., Wilmington, N. C. will increase capital to \$4,100,000, has taken over three public utility plants as follows: St. Petersburg Lighting Co., St. Petersburg, Fla., Clearwater Lighting Co., Clearwater, Fla., and the Commonwealth Light & Power Co.; also have options on other plants; will issue \$4,000,000 bonds.

La., Mansfield-Mansfield Light & Power Co. increased capital by \$50,000.

La., Plaquemine-For full details see Water Works.

Md., Hagerstown-Williamsport Power Co., Wingert Bldg., capital \$250,000, incptd. by Joseph C. Byron, Clarence M. Stockell, John B. Kieffer.

Miss., Schlater-Schlater Light & Ice Co. will rebuild plant burned at loss of \$25,000.

Miss., Shubuta-Spinks Ice Mfg. Co., T. M. Spinks, Mgr. will install electric plant in connection with hydro plant to consist of direct current generator of about 25 K. W., storage battery and rotary conveyer, 110 to 2300 volt dragline excavation; total cost \$106,000; re-claiming 4630 acres for general agricultural; with charging panels and switchboard. (See

Mo., Brookfield—North Missouri Power Co. hange of name from Brookfield Electric change Light Co., will improve plant, install boiler with super heaters and chain stoke grates, about \$150,000 to be expended.

Mo., Excelsior Springs-City will probably grant lighting franchise to Excelsior Springs Water, Gas and Electric Co.

Mo., Maysville-O. L. Wright acquired Maysville electric light plant will erect new building; will install 3 oil engines. (See Mchy. Wanted-Oil Engines.)

Mo., Milan-City, C. E. Baldwin, Mayor, will develop 300 h.p.; Wayne Burchitt, Supt. Mo., Paris-For full details see Water Works

N. C., Charlotte-Southern Public Utilities Co. will install white way.

N. C., Lincolnton-For full details see Water Works.

N. C., Marshville-For full details see Water Works.

N. C., Wilmington-For full details see Land Developments.

Okla., Red Rock-City will install electric light and power system; \$25,000 available. Address The Mayor.

S. C., Clinton-Commercial Club, Dr. A. E. Spencer, Prest. interested in establishing electric power line.

S. C., Ridgeway-City will install electric lights, water and sewerage; voted \$60,000 bonds. Address The Mayor. (Lately noted.)

Tex., Celina-For full details see Water Works.

Dallas-Dallas Power & Light Co., Joe Gill, Asst. Gen. Mgr. will begin construction about Jan. 1 on addition to power plant, doubling size of present plant and increasing capacity two-thirds; cost of building and equipment about \$2,800,000. (Lately noted.)

Tex., Eastland-Oil Belt Power Co., J. E. Lewis, Gen. Mgr. reported to expend \$1,000,-000 in doubling capacity of plant on Leon Lake; are installing 6000 K. W. General Electric Curtis turbine with accompanying boilers, condensers, etc.; extension to be of brick, 80x60 ft.; engineering details handled by Electric Bond & Share Co., 71 Broadway,

Tex., Houston-Houston Lighting & Power Co., reported to increase capital to \$4,500,000 and to construct power plant on ship channel.

Tex., Pilot Point-Civic Improvement League considering installion of street lighting system.

Tex., Raymondville-City, M. H. Dreyer, Mayor, will install light, power and water plant.

OPPORTUNITIES FOR NEW BUSINESS

THROUGH THE

DAILY BULLETIN

Manufacturers or Machinery and Equipment, Dealers in Railroad and Contractors' Supplies, as well as Architects, Contractors and Builders, find it very profitable to follow up the advance news furnished through our DAILY BULLETIN EVERY BUSINESS DAY IN THE YEAR. It is an authoritative, prompt source of information concerning every industrial and railroad undertaking of any consequence, and likewise all important building operations and municipal improvements in the whole South. The opportunity of getting in correspondence with firms that are in the market is afforded by a daily perusal of its columns.

MANUFACTURERS RECORD

BALTIMORE, MD.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

MIIM

Tex. Tulia-For full details see Water Works.

Va., Petersburg—Virginia Rallway an Power Co., John E. Harvell, Gen. Mgr., will expend during 1923 about \$250,000 in improvements to power plant and equipment; work includes completion of sub-station on Appomattox River; doubling capacity or Locks power house, by installation of 2000 K. W. generator and accessories; construct concrete flume in canal to replace wooden one, etc.

Va., Portsmouth—Virginia Railway & Power Co., Richmond, Va., reported to install 110,600 volt transmission line from Richmond to Portsmouth; construct sub-station, conduits, underground cables, etc.

Va., Radford—City, C. H. Tyler, Supt. of Public Utilities, of East Radford, will expend about \$14,000 for improvements to water works system on various streets will install 4 and 6-in. water mains, fireplugs, valves, etc.

Va., Scottsville—Big Bend Power Co., has completed preliminary enginering work for Big Ben power project, lately noted, will commence construction work in about 6 months; estimated cost about \$3,500,000; develop 90,000 H. P.; plant will be constructed in 6 independent units, power for these will be obtained by building 30-ft. dam across James River, 4 mi. from Scottsville, this unit will develop 30,000 H. P.; later will construct 4 dams to be placed across river at points from 2 to 8 mi. below Scottsville; final unit will be tunnel through river bluff at neck of isthmus formed by Horseshoe Bend; Ambler Engineering Co., Engr., Richmond.

Flour, Feed and Meal Mills.

La., Ashton—T. A. Labauve will construct rice, grits and meal mill; about 40x60 ft.; brick or concrete; install crude oil engine, 25 to 40 H. P.; metal doors; concrete floors; ventilators; wire glass, etc. (Lately noted.)

Mo., Carthage—Cowgill & Hill Milling Co., H. S. Cowgill, Prest. will construct elevator, concrete construction, capacity 125,000 to 150,000 bu. (Lately noted.)

Mo., Urbana—Frank Reser will rebuild flour mill, burned at loss of \$10,000.

S. C., Spartanburg—Claude Cole and M. S. Christman purchased plant of City Flour and Grain Co.

Tenn., Columbia—Charles Cheek, J. C. Neathery and Sam Lock, acquired Ashton Mill will improve and operate.

Tex., Follett—Farmers Grain & Supply Co. increased capital to \$18,000.

Foundry and Machine Plants.

La., Good Hope, P. O. Sellers—General American Tank Car Co., Max Epstein, Prest., 17 Battery Place, New York, reported to establish repair and manufacturing plant for the mfre, of steel cars, probably build wooden ones later; acquired 300-acre site with 1000 ft. frontage on Mississippi River.

Mo., Carthage—Gravel Loaders—Styles Mfg. Co., Bolivar, Mo. contemplates moving plant; mfre. gravel loaders, coal loaders and similar equipment.

Gas and Oil Enterprises.

Ky., Hopkins—Little Prairle Oil Co., capital \$5000, incptd. by B. M. Slaton, U. J. Oates, L. E. Littlepage all of Madisonville,

Ky., Simpson—Murrle Oil Production Co., capital \$5000, incptd. by R. A. Cartright, F. J. Capley, J. S. Mullikin all of Franklin.

Ky., Warren-Western Kentucky Refinery, capital \$10,000, incptd. by J. Robert Kirby,

Kirk Massey both of Smiths Grove, and John B. Rhodes of Bowling Green.

La., New Orleans—Globe Co., capital \$100,-000, incptd. with R. L. Jewett, Prest.; W. F. Williams, V.-P.; J. E. Shaw, Secy.

N. C., Wilmington-For full details see Land Developments.

Okla., Barnsdall—Oklahoma-Tennessee Oil Co., capital \$75.000, incptd. by Albert Langmore, W. W. Chase, O. H. Randall.

Okla., Madill—Greenwich Co., capital \$48,-000, incptd. by W. J. Rawson, Wood A. Alexander, both of Dallas, Tex., M. L. Harrick,

Okla., Oklahoma City—Reinhardt Auction Co., capital \$25,000, incptd. by W. T. Reinhardt, Mary C. Reinhardt, J. J. Everett.

Okla., Ponca City—Oklahoma Oil & Gas Co., capital \$100,000, incptd. by J. B. Hinkle, L. A. Maris, F. C. Bell.

Okla., Tulsa—Geo. S. Berry Co., capital \$30,000, incptd. by Geo. S., M. B. Berry.

Okla., Wewoka—City granted E. C. Dunn of Holdenville, gas franchise.

Tenn., Columbia—E. E. Williams, McComb, Miss., organized Columbia Oil Co., capital \$10,000, will erect plant.

Tex., Galveston—Humble Oil & Refining Co. will construct additional tank at Four-teenth St. and Ave. A; capacity 75,000 bbl.

Tex., San Antonio—Adanac-Texas Oil Co., capital \$150,000, incptd. by B. W. Somers, J. D. Reese, C. L. Watson.

Tex., Corpus Christi—For full details See Mchy. Wanted—Gas Pipe Line.

Tex., Dallas—Brown Gasoline Co., capital \$50,000, incptd. by W. W. Brown, P. H. Smith, W. W. Carter.

Tex., Henrietta—Griswold Oil & Refinery Co. acquired Beacon Refinery; contemplate constructing pipe line.

Tex., Wichita Falls—Maben Oil Corp., capital \$15,000, incptd. by H. W. Cotner, L. Stinnett, G. J. Stinnett.

Ice and Cold-Storage Plants.

Fla., Clermont—Clermont Ice Factory will rebuild plant at cost of \$20.000; 40x75-ft. building, concrete blocks, concrete floors, fire-proof construction; cork insulation for storage rooms; daily capacity 15 tons; probably install electric power.

Fla., McIntosh—McIntosh Utilities Co., capital \$25,000, incptd. with S. H. Galtskill, Prest.; N. A. Russell, Secy.-Treas.; let contract to D. H. Bury. Orange Lake, Fla. to erect 42x90-ft. fireproof ice and cold storage plant; mchy. and equipment all purchased, excepting pump and some trackage to increase storage facilities.

Fla., Miami—The Texas Co., main office Texas Bldg; Houston, Tex., will construct 5 tanks, public garage, pump house and oil warehouse at N. W. 23rd St. and Miami Ave.; brick; cost \$30,000.

Ga., Athens—Atlantic Ice & Coal Corp. let contract to William J. Miller to erect cold storage plant on Oconee St.; approx. cost \$50,000

Ky., Harlan—Harlan Ice & Refrigerating Co., increased capital to \$150,000.

Mo., Paris—For full details see Water Works.

Miss., Long Beach—R. Inglis Manufacturing & Commission Co. will rebuild ice plant burned at loss of \$12,000.

S. C., Gaffpey-L. Baker and others interested in establishment of ice plant.

Tex., West—Commercial Club interested in establishment of ice plant.

Va., Strasburg—For full details see Miscellaneous Enterprises.

Iron and Steel Plants.

Ky.. Ashland—American Rolling Mills, Q. M. Verity, Prest., Middletown, O., let contract to Dwight P. Robinson & Co., 125 g. 46th St., New York, for design and construction of plant extensions, including jobbing and sheet mill, and galvanizing plant; affording Ashland branch plant complete system of blast and open hearth furnaces, blooming mill, sheet and finishing mill for mfre. of commercial steel products.

Land Development.

Ala., Montgomery—Alger-Sullivan Lumber Co. will develop 39,000 acres of timber land for game and fish preserve.

Fla., Bartow—Lake Garfield Investment Co., lately noted incptd, with Guy Ridge, Prest, will develop 240 acres in citrus grovea.

Fla., Bradentown—City, Board of Trate and Kiwanis Club interested in development of city park on waterfront; constructed on made ground obtained by dredging river bottom to secure fill; construct seawall about 650 ft. from present shore line on east, west and north sides; pave court, build bandstand, double driveway; install white way; erect building, 2-story, concrete with tile roof, fronted by wharf, to be used for warehouse, waiting rooms and theater; will probably vote on \$150,000 bonds.

Fla., Oakland—Bear Island Groves, capital \$60,000, incptd. with A. M. Hughes, Prest.; R. B. Brock, V.-P.; J. E. Clonts, Treas.

Fla., Pensacola—National Land Sales Co., F. B. Ensley Prest., will soon place contracts for improvements to Figland Park, north of Pensacola, within next 2 years plans to develop from 100 to 200 acres in Satsuma oranges.

Fla., Valrico—Valrico Highland Citrus Corp., W. J. Miller, Prest., lately noted incptd. with \$250,000 capital, will develop 250 acres in oranges, tangerines, etc.

Fla., Vero—Beachland Development Co., capital \$25,000, incptd. with J. C. McCann, Prest.; J. M. Taylor, Secy.-Treas.

Ky., Louisville-Merrifield Realty Co., capital \$15,000, incptd. by C. B. Merrifield, Gey. Mayfield, J. L. Wheatley.

Md., Baltimore—Geo H. Schwartz, acquired about $8\frac{1}{2}$ acres of land on Shirley Ave. will develop for cottage sub-division.

Md., Baltimore—The Blythwood Co., Inc., John W. Garrett, Prest. will develop 67 acres on Charles St. Ave., for suburban homesite; Thomas W. Sears, Landscape Archt., Phila., Pa.

Mo., Carthage—Mutual System Realty & Investment Co., capital \$75.000, incptd. by James Luke of Carthage and S. C. Boggers of Kansas City.

Mo., Kansas City—Rev. Father James N. V. McKay, Asst. at St. Patricks Church, interested in development of 20 acres for cemetery.

Mo., St. Louis—Double K. Real Estate Co., incptd. by Alexander Kilpatrick, Alfred B. Kilpatrick.

N. C., Asheboro—The Makenborth Co., J. S. McAlister, Secy. and Treas. will develop 32 acres for homesite, install water, sewers and street surfacing and sidewalks; approximate cost \$26,000; Frank T. Miller, Consit. Engr., Greensboro, N. C. (Previously noted.)

N. C., Charlotte—E. S. Draper, Landscape Archt. and City Planner, 11 E. 5th St., has been retained to plan development of grounds for Claude Edwards, Myers Park, and to

develop residential grounds for W. W. Graves, Wilson, N. C.

N. C., Wilmington—Struther & Wells purchased 8 city blocks will develop for subdivision, construct streets, sidewalks, water, sewerage, light and gas systems.

S. C., Charleston—Home Builders' Building & Loan Assn., capital \$100,000, incptd. with A. J. Bailey, Prest.; W. J. Congdon, V.-P.; T. J. Sweeney, Secy.

S. C., Columbia—American Realty Co., incptd. with C. A. Rippy, Prest, and Secy.; Prioleau Etchison, Treas.

Tex., Greenville—City will purchase Hunt County Fair Grounds for park; will issue \$25,000 bonds. Address The Mayor.

Tex., Navasota—For full details see Road and Street Construction.

Tex., Waco—Park Lawn Cemetery, capital \$100,000, incptd. by B. B. Milburn, M. A. Linder, J. J. Gorman.

Va., Norfolk—Salvage Realty Corp., capital \$25,000, incptd. with A. S. Rosenkraus, Prest.; J. A. Addenbrook, Secy.

W. Va., Huntington—Federal Land & Investment Co., capital \$50,000, incptd. by D. J. Pancoke, E. C. James, J. B. Schroeder.

W. Va., Wheeling—H. C. Ogden, Wm. L. Brice, Geo. A. Laughlin, interested in development of park; \$20,000 available.

Lumber Manufacturing.

Ark., Hot Springs—Harpin & Neimeyer Lumber Co., organized Prest.; Frank Neimeyer, Secy.-Treas.; acquired controlling interests of Missouri Lumber Co.

Ga., Augusta—Bowden & Kunnes, will erect planing mill on Milledgeville rd., including boller shed, mill and office building.

Ga., Savannah—Dunle Lumber Co., Inc., re-organized with E. V. Dunlevi, Prest.; consolidation of Southern Lumber Co. and Dunlevi Lumber Co., both of Allenhurst, Ga. and James I. Miller, Richmond. Va.; timber holding located in Liberty, McIntosh and Long counties, also include saw and planing mills; plans increasing output of mills to 50,000,000 ft. annually; construct plue products plant, monthly capacity 1000 cords wood, for conversion into naval stores, pine, tar, etc.; also erect turpentine stills.

Mo., Chadwick—Lukins Lumber Co., Kansas City, Mo. will develop about 8000 acres timber land for Springdale ranch.

W. Va., Huntington—Glen Hayes Lumber Co., capital \$25,000, incptd. by W. M. York, Huntington; A. B. York, Staunton, Va. and G. B. Irvine, Williamson, W. Va.

Metal-Working Plants.

Fla., Fort Meade—Cup Holder—S. Y. Allen, contemplates establishing plant for mfre. of strawberry cup holder.

Ga., Atlanta—Turner Machine Co., capital \$100,000, incptd. by J. T. Turner and A. M. Wiliamson.

Ga., Atlanta—Legi-Type Machine Co., capital \$50,000, incptd. by A. M. Williamson and Mrs. Amelia R. Woodall.

La., Baton Rouge—Rodriquez Spring Wheel Co., 602 3rd St., organized with Alece J. Rodriquez, Prest.; George W. Rodriquez, Secy. Mgr. have not determined upon bullding; invite prices on complete line of mchy. for mfre. of spring wheels for automobiles and trucks. (See Machinery Wanted—Rubber Tire Machinery; Spring Wheel Manufacturing Machinery; Castings (Rim and Hub); Springs (Flat, Curved); Bolts (Wear Resisting or Self Lubricating).

La., New Orleans—Guest & Mayo Sheet Metal Works, incptd. with Cecil Guest, Prest.; Walter Bodenheimer, Secy.-Treas.

Md., Baltimore—Sheet Metal—J. M. Adams, 733 Ensor St., capital \$50,000, ineptd. by J. McClellan Adams, Charles H. Byron, Jr., and others.

Md., Baltimore—Porcelain Enamei Mfg. Co., 8th and O'Donnell Sts. wiit rebuild plant burned at loss of about \$300,000.

Mo., Kansas City—Hillman-Ayers Mfg. Co., Box 2, incptd. with J. P. Hillman, Prest.; A. A. Hillman, Secy.; mfre. Kewavel Champion Domestic oil burners for residences and factories.

Mo., St. Louis—Kwik Kut Knife Co., capital \$18,000, incptd. by F. E. Dixon, H. J. Ellis and L. L. Taylor.

Mining.

Ala., Escambia County—Pensacola Gravel Co., R. Leon Jones, Secy., Walnut Hill, Fla., developing sand pits, daily capacity, 4 to 6 cars daily; install drag scrape and pump. (Previously noted.)

Ky., Louisville—Clay Co., capital \$10,000, incptd. by E. A. Rothchild, Harold H. Moses and J. C. Steltenpohl.

Tex., San Antonio—Turner Gravel Co., capital \$50,000, incptd. by A. P. Turner, L. Hetlege and James Aiken.

W. Va., Charleston—Jones-Island Creek Mining Co., capital \$25,000, incptd. by W. J. Swan, W. E. Gose and P. L. Echols.

Miscellaneous Construction.

Ark., Camden—River Improvements—Government plans completing Ouachita River, including construction of lock and dams; Chamber of Commerce interested in terminal building to be erected when construction work is completed.

Fla., Bradentown—Seawall—For full details see Land Developments.

Fla., Jacksonville—Pier, etc.—City Comsn., Frank E. Owens, opened bids for construction of anchor and fender pile systems, relieving platform and steel bulkhead wall for new piers at municipal docks and terminals; J. A. Kidd, lowest bidder at \$102,420,05; Geo. B. Hills, Engr. (Bids lately noted.)

Fla., Jacksonville—Incinerator—City Comsn., W. A. Eavans, Chrmn. contemplates building about 80 ton capacity fireproof incinerator plant; type not determined upon; Dr. M. B. Herlong, Comr. Health and Sanitation. (Lataely noted purchased site.)

Fla., Palatka—Putman Chamber of Commerce interested in building municipal dock and warehouse along St. Johns river, approx. cost \$125,000; contemplates bond issue. Address The Mayor.

Fla., St. Petersburg—Pier, etc.—Lester Harvey, contemplates developing deep water freight pier on north spit of Bayboro harbor, erect warehouse, etc.

Ga., Savannah—Wharf—Savannah Creosoting Co., will construct 300 ft. wharf, dredge channel and lay about 4000 ft. railroad track; approx. cost \$50,000; open bids m about two weeks.

La., New Orleans—Wharf, etc.—Port Commrs., R. S. Hecht, Prest., 200 New Orleans Court Bldg., will erect on inner harbor of navigation canal 220x265-ft. concrete wnarf and 200x200-ft. shed, steel mill building; estimated cost \$1,750,000; plans by Docg Board Engrs. (Lately noted.)

La., New Orleans—New Orleans Industrial Canal Land & Harbor Development Co., capital \$100,000, incptd, with J. H. Bernhard, Prest.; Hugh E. Vincent, Secy.

La., New Orleans—Terminals—City contemplates building additional terminal facilities; vote Nov. 7 on \$5,000,000 bonds. Address The Mayor. (Lately noted.)

Md., Baltimore — Elevator — Baltimore — Ohio R. R. Co., H. A. Lane, Chief Engr., having plans and specifications prepared vy John S. Metcalf Co., 108 S. La Salle St., Chicago, Ill., for rebuilding steel concrete elevator at Locust Point (lately noted burned); structure to have capacity of 3,000,000 bu. of grain, storage space consist of bins capable of expansion to care for 8,000,000 bu.; install belt conveyor to enable the loading of grain and other cargo without the necessity of reberthing; also complete facilities for drying and cleaning grain; elevator to be built on the water's edge adjacent to piers, so that gallery system can be extended to other piers in the future; bids open for construction in about 3 months; work under supervision of Chief Engr., assisted by L. P. Kimball, Engr. of Building.

Miss., Vicksburg — Seawall — City, J. o. Hayes, Mayor, have preliminary plans completed to construct 4000 ft. sea wall extending from foot of China St. to Hill City Compress levee, also provides gates at streets and approaches to river landing which can be closed for protection from Mississippi river.

Mo., Atherton—Levee—Atherton Levee Dist., T. B. Hudspeth, plans building levees and revetments to protect 6500 acres of lowlying land in Jackson County.

Mo., Joplin—Swinmming Pools—Park Bd. let contract to H. Kost, 2002 Jackson Ave. at \$13,000 to construct 2 swimming pools and bath houses in municipal parks; T. E. Martinie, Archt.; S. P. Ashcraft, City Engr. (Previously noted.)

Mo., St. Louis—Levee—For full details See Mchy. Wanted—Levee Work.

S. C., Charleston—Dredging Channel and Sampli River. For full details see Mchy. Wanted—Dredging.

Va., Danville—Heating Plant—John T. Watson, contemplates building steam heating plant to heat about 40 new residences by plping system.

Va., Norfolk—Coal Pier—Virginian Railway, H. Fernstrom, Chief Engr., let following contracts for construction of \$3,000,000 coal piers at Sewalls Point; to Sanford and Brooks, Baltimore and Norfolk, for piling and substructure of pier; to Bethlehem Steel Bridge Corp., Continental Bidg., Baltimore, Md., for construction of pier proper, and to Atlantic Gulf & Pacific Co., Norfolk, for dredging; pier will be 1073 ft. long, 86 ft. wide, 74½ ft. high; install traveling towers, etc., increasing dumping capacity to 12,000 tons per hour; also enlarge yards to accommodate 260 additional cars. (Previously noted.)

Miscellaneous Enterprises.

Ala., Mobile—Yellow Cab Co., capital \$25,-000, incptd. by R. C. Herndon, R. L. Crawford and C. M. Rogers.

Ala., Mobile—Truth Advertiser Co., capital \$15,000, incptd. by J. F. and F. E. Durham, Mrs. Henry Ruffin.

Ark., Whitener—Dehydration—Sam McDonald will not rebuild this season, install gasoline power outfit for 500 lb. capacity dried fruit plant. (Lately noted burned at loss of several thousand dollars.)

Fla., Bradentown—Bradentown Home Builders Corp., capital \$50,000, incptd. with B. W. Williams, Prest.; John T. Campbell, Secy.

Fla., Daytona—Daytona Beach Amusement & Recreation Park, Fleck Brothers, Inc., New York City, reported to expend \$250,000 on development of amusement park; leased ocean front property.

Fla., DeLand—Putnam Hotel Co., capital \$200,000, incptd. with D. E. Brown, Prest.; V. W. Gould, Secy.

In writing to parties mentioned in this department, it will be of ad vantage to all concerned if the Manufacturers Record is mentioned.

mber land ment tidge,

22

Mis.

8, G.

con-

true-

bing

ford.

Stem

ming

e, of

rade ment d on botbotwest

way; tile wareprob-

Co., racts th of o desuma

citrus acres Co.,

capi-Gey. uired

Inc., p 67 homercht.,

es N. h, ins for

ed B.

co., J.
evelop
sewers
proxiconsit.

dscape ., has counds and to

1.

Fla., Jacksonville—Outdoor Advertising Co., capital \$10,000, incptd. with C. H. Johnson, Prest.; S. B. Hawk, Secy.-Treas.

Fla., Miami—Shenandoah Apartments, Inc., capital \$100,000, incptd. with C. H. Pfuntner, Prest.; C. W. Horn, Secy.-Treas.

Ga., Ashburn—Hatchery—Dr. J. W. Bradley, interested in establishment of hatchery at farm bureau headquarters, capacity about 10,000 eggs.

Ga., Athens—Athens Coffee & Tea Co., incptd. by L. C. Brown, Mrs. L. C. Brown and Victor E. Oliver.

Ky., Frankfort—Printing—State Printing Comsn. let contract to State Journal Co. for public printing and binding of first-class for 4 yrs. beginning Jan. 1, 1923.

Ky., Louisville—Redrying, etc.—Southwestern Tobacco Co., 801 W. Main St., capital \$3,000,000, organized with T. B. Yuille, Prest., 21 East 40th St., New York; acquired plants in Hopkinsville, Lexington, Danville, Maysville, and other tobacco markets; will redry and rehandle tobacco.

Ky., Middlesboro—Kentucky & Virginia Construction Co., capital \$100,000, incptd. by E. O'Toole, Jr., John L. O'Connor and James P. Burnes.

La., New Orleans—Cloverland Dairy Co. plans expending \$200,000 on plant extensions on Carrollton Ave.; improvements include bottling and pasteurizing plants, office building, shops, refrigeration plant, stables, etc.; brick and frame construction; Favrot & Livaudais, Archts., Hibernia Bank Bldg.

Md., Baltimore—Agricultural Supplies—Baltimore Seed Co., 709 Calvert Bldg., incptd. by Clifton S. Brown, William G. Falk and James C. Murphy.

Md., Baltimore—Storage, etc.—Globe Warehouse Co., 709 Calvert Bldg., incptd. by Alexander Hardcastle, James C. Murphy and others.

Md., Baltimore—City Hand Laundry, 2434 Greenmount Ave. increased capital.

Md., Baltimore—Baxter Paper Co., 400 N. Holliday St., capital \$25,000, incptd. by Wylie M. Baxter, Jr., Rodney J. Brooks and Stephen D. Many

Md., Baltimore—Up-To-Date Laundry Co., 2204 Frederick Ave., incptd. by Frank J. Medinger, Clarence W. Perkins and Albert A. Levin.

Md., Baltimore—Star Construction Co., Room 19 2 E. Lexington St. incptd. by Edgar C. Bankert, John L. Kirby and Jere J. Santry.

Md., Vindex—Vindex Supply Co., capital \$30,000, incptd. by Stephen Treverton, Walter W. Dawson and Ernest Ray Jones.

Mo., St. Joseph—Collins Downs Hotel Co., capital \$30,000, incptd. by W. E. Downs, George C. and Mary K. C. Collins.

Mo., Sullivan—Farmers Co-operative Assn., No. 301, capital \$20,000, incptd. by Frank Stenzig, Thomas Manion and Richard Ford.

N. C., Asheville—Terminal Bus Line Co. plans erecting 3 or 4 story terminal building, on S. Market and Beaumont Sts.; basement used for repair shop, 1st floor for waiting rooms etc.

Okla., Perry—Fire Fighting Equipment—City will purchase fire truck and fire house; voted \$20,000 bonds. Address The Mayor.

S. C., Greenville—Dyeing—Southern Franklin Process Co., let contract to J. F. Gallivan Building Co., at \$50,000 e₀ erect dye house; double capacity of plant,

Tenn., Knoxville—Baltimore Dairy Lunch, capital \$16,000, incptd. by Herbert and Raymond Weaver, Bene H. Testerman.

Tenn., Knoxville—Transportation—Beaver | plant burned at loss of \$20,000.

Taxi Co., incptd. by O. T. Beaver, R. C. Bales and T. G. Asquith.

Tenn., Memphis—Birbaum Equipment Co., incptd. by Walter M. Birnbaum, L. B. Cocke and F. G. Wear.

Tex., El Paso—Fire Fighting Equipment, etc.—City, Wm. F. Griffith, Fire Commr., plans installing double platoon system for four companies, probably 2 pumpers, 2 hose wagons or hook and ladder, two or more new stations; bids after March 1, 1923; Percy McGhee, City building Inspector. (Lately noted.)

Tex., Fort Worth—Publishing—World Co., capital \$60,0000, incptd. by C. R. Bunker, F. E. Force and G. W. Scalch, Jr.

Tex., Houston—Houston Transfer Co., capital \$40,000, incptd, by J. W. Ingold, J. G. Newman and A. T. McFarlane,

Tex., Houston—Kelso-Vetrano Plumbing Supply Co., capital \$30,000, incptd. by H. F. Kelso, E. J. and L. J. Vetrano.

Va., Norfolk—Fire Boat—Albert L. Roper, Acting City Mgr. opened bids for conversion of steamer General Harvey Brown into the Norfolk Fire Boat No. 1; Portsmouth Machine Works, lowest bidder.

Va., Strasburg—Shenandoah Valley Cooperative Milk Producers Assn. will erect combined dairy and ice plant; 116x40-ft.; portion of building to be 2 stories; install 25 ton and 12 ton refrigerating machines, 75 and 25 H. P. oil engines, equip complete with ice making and dairy mcnv.; Gally capacity 2000 gals, dairy and 15 ton ice plant; foundation of building completed; J. L. Barr, Consit. Engr., 224 St. Paul St., Baltimore, Md. (See Mchy. Wanted—Engines (Oil and Steam); Boiler).

Miscellaneous Factories.

Ala., Birmingham—Cigars—R. D. Burnett, Prest. of R. D. Burnett Cigar Co., purchased plant of Capital City Tobacco Co. of Atlanta.

Fla., Daytona—Ice Cream—Triple Ice Cream Co., Ackland Stilling and Chas. Nusbaum, having plans prepared for erection of plant on Myrtle Ave.

Fla., Miami—Independence Pharmacy, capital \$10,000, incptd. with A. W. Morrison, Prest.; L. M. Morrison, V.-P.; J. E. McKee, Sect. Trees.

Ga., Savannah—Candy, etc.—Lee Roy Lovenstein Co., capital \$15,000, incptd. by Roy Lovenstein, Maler Utitz, Irving F. Meinhard.

Ga., Savannah-Naval Stores-For full details see Lumber Manufacturing.

Ky., Christian—W. W. Joslin Harness Co., capital \$5000, incptd. by W. W. Joslin, C. W. Keach.

Ky., Kenton—Pull-Thru Mfg. Co., capital \$50,000, incptd. by Elmore W. Sample, Henry Nieberg, Grover Suedkamp all of Covington.

La., Monroe—Carbon Black—Cosmos Carbon Co., Charleston, W. Va., has acquired control of plant and properties of Oscar Nelson Co. of Louisiana.

La., New Orleans—Louisiana Battery Mfg. Co., capital \$5000, incptd. with Jos. D. Freeman, Prest.; Victor C. Burk, V.-P.; S. D. Power, Secy.-Treas.

Md., Baltimore—Rubber Heels—Holtite Mfg. Co., Ostend and Warren Sts. will erect addition to plant; 1 story; brick; daylight; 50x155 ft.; double capacity; Stanislaus Russell, Archt., 11 E. Lexington St.

Md., Balitmore—Kro-Ko Corp., Smallwood and Eagle Sts., capital \$10,000, incptd. by Donald N. Gilpin, Albert C. Hinrichs, Wm. G. Griesemer.

Md., Baltimore—Syrups—Steuart Son & Co., Eastern Ave. and President St. will rebuild plant burned at loss of \$20,000. Miss., Gulfport—Chowning Coffee Co., capital \$10,000, incptd. by J. R. Chowning, C. M. Alderson, R. C. Miller.

Mo., Fulton—International Shoe Co., St. Louis, considering establishing shoe plant.

Mo., St. Louis—Beach Chemical Co., capital \$125,000, incptd. by J. M. Frere, J. A. Frere, M. A. Alexander.

Mo., St. Louis—Sugar Creek Creamery Co., lately noted incptd, with \$57,000 capita, organized with H. C. Horneman, Prest., 123 Washington Ave., Danville, Ill. contemplate erecting plant.

S. C., Greenville—Mattress—Greenville
Mattress Mfg. Co., O. B. Van Wyck, has
building, daily output 100 mattresses; will
install blow gin, picker, garnett mch., etc.;
cost of equipment \$100,000. (Lately noted)
See Mchy. Wanted—Blow Gin; Garnett Machine; Picker; Willow Machine.

S. C., Sumter—Ice Cream—L. J. Corning, Prest. of Butter Cup Ice Cream Co., Hamlet, N. C., has building wil equip for plant,

S. C., York—Mint Cola Bottling Co., captial \$8000, incptd. with M. L. Carroll, Prest.; J. G. Dickson, V.-P.; C. W. Carroll, Secy.

Tenn., Greenville—Butter, Cheese, etc.— Chapin-Sacks Co. will erect plant to mfre. butter, cheese and ice cream; pressed brick; Blev Neal, Morristown, in charge of work.

Tenn., Memphis—Building Materials, etc.— Stryker Kot-N-Wood Prodeuts Co., will construct factory at 1040 Oakland Ave.; ironclad and steel; cost \$61,000.

Tex., Dallas—Dallas Paper Co., 2211 Laws St., S. S. Mallinson, Prest., will rebuild plant lately burned at loss of \$60,000.

Tex., Dallas—Medicines—R. D. Hill Co., Los Angeles, Calif. will construct \$60,000 plant; Clyde V. Wallis, Industries Mgr. Chamber of Commerce, Interested.

Tex., San Antonio—Luthy Battery Mfg. Co., capital \$6000, incptd. by J. O. Luthy, G. A. Durrier, Jr., W. Cringel.

Tex., Wichita Falls—Producers Creamery Co., capital \$80,000, incptd. by Henry Ford, F. H. Fennen, R. C. Priebe.

Va., Norfolk—Schultz Soap Products Corp., incptd. by Abe Schultz, Treas.; Leonard Schultz, Secy.

Va., Richmond—Rid-ol Chemical Co., capital \$10,000, organized with C. M. Langhurue, Prest.; John K. Hall, Secy.

Va., Richmond—Tobacco Trading Corp., capital \$500,000, incptd. with Archibald G. Lewis, Prest.; J. A. Lilly, Secy.

Va., Richmond—Baking Powder and Coffee
—The E. C. Laird Corp., capital \$600,000,
incptd. with E. C. Laird, Prest.; R. C. Smith,
V.-P.; J. S. Overbey, Secy.

W Va., Grafton—Imperial Ice Cream Co. reorganized with \$3,500,000 capital Geo. W. Strongs, Prest.; C. T. Hiteshew, V.-P.; J. H. Randolph, Secy.-Treas. (Lately noted.)

W. Va., Shinnston—Glass—L. E. Alley, Prest., Alley Glass Co., Bridge St., interested in erection of \$300,000 plant.

Motor Cars, Garages, Tires, Etc.

Ala., Tuscaloosa—Service Station.—Gulf Refining Co. will erect filling station, acquired site cor. Broad St. and 20th Ave.

D. C., Washington—Studebaker Automobile Agency, will erect 4 story, 60x98-ft. building on 14th St., reinforced concrete construction, limestone facing, steel sash throughout, 2 elevators; to be erected by Wardman Construction Co.; Frederick B. Plye, Archt.

Fla., Miami-Garages, etc.-For full details see Gas & Oil.

Ky., Hazard-Perry Motor Co., capital \$10-

2.

St.

far

re.

taı.

23

ate

llle

184

rill

fa

ap-

re

ant

000

m-

fg

hy,

pi-

nD.

G.

00.

th.

Co

ley.

ulf

red

hile

ing

on,

2

on-

de-

10-

000, incptd. by W. G. Jenkins, J. E. Jones and J. W. Craft.

Ky., Millstone-Garage-Slemp Buick Co., capital \$10,000, incptd. by A. C. Slemp and Hobart Picklesimer, Millstone; P. W. Slemp, Cincinnati, Ohio.

Md., Baltimore—Garage—Samuel J. Salz-man let contract to S. O. Moxley, 805 E. 22nd. St. to erect 1 story brick garage also brick dwelling on Carroll rd.; J. E. Moxley, Archt., Equitable Bldg.

Md., Baltimore-United States Auto Sales Co., 12 E. Mt. Royal Ave., let contract to Consolidated Engineering Co., Calvert Bldg., to erect addition to building; Smith & May, Archts., Calvert Bldg.

Md., Baltimore-Garage-Frederick E. Hesser, 1301 N. Patterson Park Ave. reported to erect 1 story, 160x65-ft. brick garage, having \$0 compartments; approx. cost \$6000.

N. C., Charlotte-Auto Rent Co., capital \$10,000, incptd. by John Bass Brown, J. H. Van Ness, Jr., and W. F. Kilgore.

S. C., Charleston-Garage, etc.-Overland Co., capital \$10,000, incptd. by W. E. Jacobs, Charleston; A. H. Wichman, Walterboro, S. C.

S. C., Dillon-B. & B. Auto Sales Co., capital \$40,000, incptd. with D. F. Biggs, Prest.-Treas.; E. B. Rogers, Secy.

S. C., Greenwood-Filling Station-Ware Shoals Mfg. Co. will erect filling station in connection with other improvements; construction begun.

Tenn., Knoxville-Mahan Kerr Motor Co. has plans for construction of building at Market and W. Cumberland Sts., approx. cost \$100,000; soon let contract.

Tenn., Memphis-Filling Station-McGregor Battery Engineering Co. let contract to R. F. Boudin to erect 28x105-ft. drive-in battery station at Marshall and Union Ave.; construction of dark brown faced brick, mansard roof, stone trimmings, steel columns and beams; also remodel adjoining building for office and service shop; Estes W. Mann, Archt.

Tenn., Memphis-Garage, etc.-Evans-Linton Co. capital \$10,000, meptd. by Geo. H. Evans, M. S. Linton and F. A. Gillett.

Tex., Donna-Knapp Motor Co., incptd. by E. E. Knapp, J. C. Powell and P. H. Long-

Tex., San Antonio-Filling Station-Robert Morgan let contract to W. M. Behymer to erect a drive-in filling station at cor. Ave. C and 7th St.; tile and stucco construction; approx. cost \$8500. (Lately noted.)

Railway Shops, Terminals, Roundhouses, Etc.

Tenn., Nashville-Tennessee Central Ry Co., H. R. Manby, Chief Engr., will probably use plant of William J. Oliver Mfg. Co. as temporary location until shop is rebuilt, burned at loss of \$400,000.

Tex., El Paso-Galveston, Harrisburg & San Antonio Ry. Co., H. M. Lull, Chief Engr., Houston, Tex. will expend \$348,000 on improvements; extend roundhouse 115 ft. giv ing 8 additional stalls; build locomotive erecting shop, capacity twelve 2-10-2 type engines; also build 2 story 40x143 ft. storehouse of brick or concrete construction, rearrange trackage, etc.

Road and Street Construction.

Ala., Gadsden-State Highway Dept., Montgomery, Ala. plans building 3 mi. road in Etowah County, as continuation of Guntersville to Etowah County line road, via Cox Gap.

Ark., Fort Smith-Chamber of Commerce interested in building road from Fort Smith | plans extending Brown St. to Caldwell,

to Favetteville, through Peach Orchard and Evansville.

Ark., Hot Springs-City, Board of Commrs. of Street Improvement Dist., No. 60. For full details see Mchy. Wanted—Paving.

Ark., Little Rock-Commrs. of Street Improvement Dist. No. 314, R. L. Saxton, Secy. received bids for paving 22 blocks on W. 12th St. from Battery to Lewis Sts.; Oliver Construction Co., Little Rock., at \$49,570, low bidder for rock asphalt surface; Standard Paving Co., Tulsa, Okla., at \$55,660, for asphaltic concrete; M. D. Cook, Little Rock, at \$57,533, for warrenite. (Lately noted.)

Fla.. Bradentown-For full details see Land Developments.

Fla., Lake City-State Highway Dept., Tallahassee. For full details see Mchy. Wanted -Road Construction.

Fla., Jacksonville-For full details see Bridges, Culverts, Viaducts.

Fla., Punta Gorda-State Highway Dept., Tallahassee, Fla., plans building 4.25 mi State road No. 1 from High Point to Punta Gorda; Chief Engr. will receive bids.

Fla., Tavares-City plans paving 3 sides courthouse square. Address The Mayor.

Fla., West Palm Beach-Palm Beach County, Commrs., Hector Harris, Chrmn., let contract to Maule Paving Co., Ojus, Fla., at \$35,000, to surface road from West Palm Beach canal to Lake Worth road.

Fla., West Palm Beach-Palm Beach County Commrs., Hector Harris, Chrmn., will improve 4 roads. For full details see Mchy. Wanted—Road Construction.

Fla., West Palm Beach-Kenilworth Development Co., J. C. McGinley, Prest., let contract to H. C. Daniels, for grading, rocking and oiling streets in Sunset Heights, new sub-division.

Ga., Albany-State Highway Dept., Atlanta, Ga., will build 2 mi. gravel road from city limits of Albany, Dougherty County, to Lee County line; Federal Ald Project No. 298; invites bids.

Ga., Atlanta-City, plans widening and extending Madison Ave. from Spring St., through to Whitehall. Address The Mayor.

Ga., Decatur-City. For full details see Mchy. Wanted-Paving.

Kentucky-State Highway Dept., Frank-fort, Ky. plans building 2 sections of Jackson Highway in Bullitt, Spencer and Nelson Coun-

8 mi. road from Jefferson County line to High Grove.

7 mi. from High Grove to Cox Creek; both high type surface. Also plans following: 20 mi. Mayo Trail from Louisa to Johnson

County line; Lawrence County.

11 mi. Mayo Trail from Lawrence county line to Paintsville; Johnson County; both sections of grades and drain type.

91/4 mi. on Vanceburg-Maysville road, between Tollsboro and Valley; Lewis County State Project No. 20; fow type surfacing; all bids opened in Nov.

Kentucky-State Highway Comsn., Frankfort, Ky., let contracts for following:

Knox and Bell Counties-12.775 mi. Barbourville-Pineville road; from Barbourville to Pineville; rock asphalt on concrete base; Federal Aid Project No. 39, Sec. A, and 57, Sec. A; to Metzel-, O'Hearn & Lewen, Covington, Ky., at \$338,398.12.

Trigg County-2.981 mi. Cadiz-Hopkinsville road, from end of Federal Aid Project No. 44 to Cadiz; gravel; Federal Aid Project No. 73, State Project No. 1, Sec. B; to Alexander Bros., Cadiz, Ky., at \$36,062.92. (Lately noted.)

Ky., Paducab-F. W. Katterjohn, Mayor

Ky., Whitesburg-Letcher County will let contract soon to build 25 ml. road from Whitesburg to Harlan County line, being first section of Cumberland Mountain-Cumberland River highway connecting Kentucky and Cumberland Rivers, and Harlan and Letcher Counties.

La., Amite-Chas. G. Weishaar, Town Clk., let contract to Moore Paving Co., Amite, at \$16,000 to build 8 mi. gravel road; construct concrete culverts, etc.; Thos. A. Tycer, Engr. (Lately noted.)

La., Baton Rouge-Louisiana Highway Comsn., Raymond Bldg., Baton Rouge, let contracts to Hogsett & Co., Churchpoint, La., for gravel surfacing following:

Sec. A-11.35 mi. Tallulah-Delta High-way; Madison Parish, Federal Aid Project No. 125; \$61,267.36. Sec. B-7.10 mi. Tallulah-Delta Highway;

Madison Parish, Federal Aid Project No. 125; \$39,006.70.

Sec. B-16.7 ml. Monroe-Ruston Highway; Ouachita Parish, Federal Aid Project No. 114; low bidder Meyer-Greenwald Construction Co., at \$137,635.53, with concrete culverts; at \$122,007.82, with vitrified clay pipe.

Sec. A-2 ml. Monroe-Ruston Highway; Ouachita Parish, Federal Aid Project No. 114; low bidders, Southern Roads Co., Birmingham, Ala., at \$74,356.68, for Warrenite bitulithic; E. J. Deas & Co., Shreveport, La., at \$63,468.95 for asphaltic concrete; Lawrence, Nixon & Phillips, Jackson, Miss., at \$68,365.80, for Kentucky road asphalt. (Lately noted.)

La., Bunkie-Town let contract to Allen Desauhce, Opelousas, La., for 25,000 sq. yds. concrete sidewalks at \$1.65 sq. yd. Address The Mayor.

La., Monroe-City plans paving and laying concrete curb and gutter on Grand and De-Siard Sts.; Ouachita Parish furnished \$180-000; contemplates advertising for bids.

Lat, Monroe-Ouachita Parish Police Jury, Road Dist. No. 1, will build 2 roads. For full details see Mchy. Wanted-Road Construction.

La., Natchitoches—Louisiana Highway Com-sn., Baton Rouge, La. For full details see Mchy. Wanted—Road and Bridge Construction.

La., New Orleans-Louisiana Highway Comsn., Raywond Bldg., Baton Rouge, will receive bids antil Nov. 7 to build mile New Orleans-Pointe-a-la-Hache highway around Poydras Crevasse, on slope of levee.

Louisiana-Louisiana Highway Baton Rouge, La., will build 4 roads. For full details see Mchy Wanted-Road Construction.

Md., Baltimore-Paving Comen., R. Keith Compton, Chrmn., 214 E. Lexington St., received bids for following: Batavia and Cottage Aves. with concrete-cement; Weaver St. and Glyndon Ave.; portions of Weaver, Arabia and Tyndale Aves., Lanvale St., Oksley, Harcout and Canterbury roads; Appicella & Leonard Co., at \$34.521.30 low bidder;

Two roads in Mt. Washington Section; Kenoak Ave. from Old Pimileo road to Hilltop road, and Hilltop road from Kenoak road to South Ave.; sheet asphalt; American Paving & Contracting Co, Montebello, Baltimore, Md., at \$43,649.50, low oidder.

Miss., Belzoni—Humphreys County, Board of Supvrs., Beat Three Road Dist., plans improving roads; vote Nov. 3 on \$100,000

Miss., McComb—City, Board of Selectment, will receive bids until Nov. 7 to lay 47,770 sq. yds. sidewalks, 32,160 lin. ft. curbing; 12,000 cu. yds. grading; Kramer Engineering Co., Consulting Engr., Magnolia, Miss.

Miss., Sardis-Panola County Commrs. will

seceive bids until Nov. 6 for 30 mi. gravel turfaced road on Federal Ald Project Highway No. 55.

Missouri—State Highway Dept., Jefferson City, Mo. let contract to Allison Dillinham Construction Co., St. Joseph. Mo., at \$18,-285.75 for 3.306 ml. State road from Atchison County line to Andrew County line; Holt County, State Aid Project No. 20,190. (Lately noted.)

Plaps grading and constructing drainage structures on following:

Andrew County—4.452 mi. State road in County; State Aid Project No. 20,186; N. R. Sack, Div. Engr., Ballinger Bldg., St. Joseph, Mo.

Boone County—7.119 ml. State road north, east, south and west of County; State Aid Project No. 20,127; R. W. Hodson, Div. Engr., Jefferson City.

Cass County—3.953 mi. State road on Pleasant Hill-Strasburg road; State Ald Project No. 20,174; A. C. Lingley, Div. Engr., Rellance Bldg., Kansas City, Mo.

Newton County—3.087 ml. State road north and south from Neosho; State Ald Project No. 20.192; Ray Denlap, Div. Engr., Frisco Bldg., Joplin, Mo.

Nodaway County—3.532 ml. State road north, south, east and west from County; State Ald Project No. 20,209; N. R. Sack, Div. Engr., Ballinger Bldg., St. Josepn, Mo.

St. Clair County—4.127 ml. State road from Lowry City to Osecola; State Aid Projcet No. 20,176; Ray Dunlap, Div. Engr., Frisco Bidg., Joplin, Mo.

St. Charles County—3.178 mi. State road on St. Charles-Westalton road; gravel surfacing; State Aid Project No. 20,220; S. M. Rudder, Div. Engr., Bristol Bidg., Webster Grove. Mo.

Stoddard County—6.046 mi. State road north and south of County; gravel surfacing; Federal Aid Project No. 197-A; Frank B. Newton, Div. Engr., Sikeston, Mo.

Washington—3.386 mf. State road from Potosi to Steelville; Federal Ald Project No. 160-A; S. M. Rudder, Div. Engr., Bristol Bldg., Webster Grove, Mo.

Mo., Cameron—City let contract to Cook-O'Brien Construction Co., Kansas City, Mo. at \$4573.71 to pave Pine St., between 3rd and 4th Sts.; cement concrete. Address The Mayor. (Lately noted.)

Mo., Carthage—Jasper County plans building 18-ft. concrete highway from Carl Junction to Opolis, Kan., to connect with Joplia-Carl Junction highway. Address County Commrs.

Mo., Chillicothe—City plans paving Eastin St. from Calhoun to 2nd; brick. Address The Mayor.

Mo., Excelsior Springs—City plans grading and paving Regent Ave.; will invite bids soon. Address The Mayor.

Mo., Jefferson City-City. For full details see Mchy. Wanted-Paving.

Mo., St. Louis-City, Board of Public Service, received bids for following:

To improve Watson road from Southwest to Pernod Ave; Webb & Kuenze Construction Co., St. Louis, at \$137,744.50, low bidder

Resurface Easton Ave. from Marcus Ave. to Kings Highway; F. A. Stiers Co., St. Louis, at \$38,991, low bidder. (Lately noted.)

Mo., Springfield—City let contract to Hedges-Weeks Construction Co., for concrete paving on Loren St. between Hollanα anα Dolnson Aves.

Mo., Trenton—State Highway Dept., let contract to Albert G. Brown, at \$6997.30, for concrete highway in Madison Township.

North Carolina-State Highway Dept., Ra-

leigh, N. C., received bids for following projects:

101—Beaufort County, 4¼ ml. hard surface road from Pitt County line to Marsden; low bider Public Service Corp. of New Jersey, at \$129,905.75.

105-A—Beaufort County, 2 mi. hard surface road from Bellhaven to Leechville; low bidder, J. L. McChee Construction Co., at \$71,672.20. 105-B—Beauford County, 5 mi. hard surface road from Bunyon toward Belhaven; low bidder, Public Service Products Corp., of New Jersey, at \$129,905.75.

901—Buncombe County, 7.6 mi. hard surface road from Mine Hole Gap to Henderson County line; low bidder, A. J. Wardrup & Co., Knoxville, Tenn., at \$292,527.40. (Lately noted.)

133—Gates-Pasquotank Counties, 140.7 mi. gravel road from Sunbury to Jackson's Corners, through Dismal Swamp; low bider, C. Lacey, Wilmington, N. C., at \$91,014; Pittsburgh-Des Moines Bridge Co., at \$34,-463.35, for bridges.

152—Hyde County, 12.5 mi. soil road from Rose Bay to Leechville; low bidder, A. O. Mann, at \$68,774.

220-282—Wayne-Duplin Counties, 28.75 ml. hard surface road from Goldsboro to Warsaw, Route No. 40; let contract to Union Paving Co., Chicago, Ill., at \$708,011.90.

N. C., Ashboro—Makenworth Co., let contracts to Plott & Dillon, Grading Contrs. and A. B. Copenhaver, Paving Contrs. at \$9000 for 4000 ft. gravel streets and 3000 sq. yds. concrete sidewalks; Frank T. Miller, Conslt. Engr.; all Greensboro, N. C. (Lately noted.)

N. C., Greensboro—Guilford County Commrs., and County Highway Comsn., plan following:

Hard surfacing spur connection between Pleasant Garden and proposed state road to Randleman.

to Randleman.

Top-soil 2 mi. old Pleasont Garden road along railroad tracks.

N. C., Hendersonville—Henderson County, Board of Road Trustees, will build 4 roads. For full details see Mchy Wanted—Road Construction.

N. C., Mt. Airy—State Highway Dept., Raleigh, N. C., contemplates building 6 ml. road from Mt. Airy to Virginia State line to connect with road from Hillsville, Va.

N. C., Salisbury—W. B. Strachan, Mayor, let contract to R. M. Hudson Co., Salisbury, for mile of bitulithic street paving, including W. Henderson and S. Ellis, extensions.(Lately noted.)

N. C., Snow Hill—Town plans hard surfacing principal business and residential streets. Address The Mayor.

N. C., Washington—Beaufort County Road Comsn. will build 2 sections of road. For ful details see Mchy. Wanted—Road Construction.

N. C., Wilmington-City. For full details see Mchy. Wanted-Paving.

N. C., Wilmington—New Hanover County Commrs. For full details see Mchy. Wanted —Road Construction.

N. C., Wilmington—For full details see Land Developments.

Okla., Medford—Grant County plans building hard-surfaced roads; contemplates voting on \$1,000,000 bonds. Address County Commrs.

Okla., Muskogee—R. P. Harrison, City Mgr., will lay brick gutters 5-ft. wide, on Broadway from 2nd to 5th Sts.; John R. March, City Engr.

Okla., Oklahoma City—City, Warren E. Moore, Commr. of Public Works, let contract to Western Paving Co., Oklahoma City, at \$15,000 to resurface 12th St. from Harvey to Dewey Aves.

S. C., Charleston—Jos. C. Barbot, Cik, plans paving Vanderhorst St. from King 8t. to Rutledge Ave.; Bogard St. from Norman to President; Magazine from Charles to Logan; Percy, from Spring to Line; Laurens from Wharf to Anson; Wall from Laurens to Calhoun.

S. C., Greenville—City let contract to L. P. Slattery, Greenville, at \$3000 to \$3500 for laying 1800 yds. asphalt paving on Waanington and Pettigrue Sts., and Hampton, McBee and Butler Aves. Address The Mayor.

S. C., Greenville—State Highway Dept., Columbia, S. C., plans building 16 ml. Greenville-Brevard Highway; bids opened Nov. 6.

S. C., Walhalla—Town plans street paving; contemplates voting on \$50,000 bonds. Ryan Engineering Co., Engr., Columbia, S. C.

Tennessee—State Highway Dept., Nashville, Tenn., let contracts for following:

10.75 ml. road between Wilson County line and Carthage. Smith County; Federal Aid Project No. 68; to Phillips, Simpson & McGugin Contracting Co., Stahlman Bldg., Nashville, at \$161,849, for roadway; and \$61,929 for bridges.

8.01 ml. road between Tiptonville road and point 5 ml. west of Hornbeak; Lake and Oblow Counties; Federal Ald Project No. 71; to J. Gray Construction Co., Martin, Tenn., at \$80,971. (Lately noted.)

Tenn., Johnson City—City Comsn., let contract to Municipal Paving and Construction Co., Bristol, Tenn., at \$100,000, for 37,000 sq. yds. paving, and 33,000 lin. rt. curb and gutter; covering 11 paving districts.

Tex., Arlington—W. H. Rose, Mayor, let contract at \$6000 to pave College Ave. from Abrams St. to Grubbs Vocational College; Tarrant County furnished \$6000; R. V. Glenn, Engr. (Lately noted.)

Tex., Bay City—Matagorda County, John F. Perry, County Judge, plans building shen roads; vote Nov. 25 on \$1,500,000 bonds. (Lately noted.)

Tex., Beaumont—Jefferson County Commraplans following:

17 mi. paving on Houston road.

8 mi. pavement on Voth road; concrete and concrete with bituminous topping; Λ . C. Love, County Engr.

Tex., Bonham—Fannin County plans 8 ml. Bonham-Honey Grove, State Highway No. 5; \$80,000; A. P. Bolding, County Judge; A. J. Goode, County Engr.

Tex., Daingerfield—Morris County. For full details see Mchy. Wanted—Road Construction.

Tex., Dallas—S. R. Aldredge, Mayor, contemplates improving Turtle Creek Blvd.; Geo. D. Fairtrace, City Engr.

Tex., Dallas—Dallas County Commrs. Court, Archt C. Allen, County Judge, let contract to Wear & Thomas, at \$200,346.06 for surfacing; to Fuller & Co., at \$221,741.08 for base; for 14½ mi. State Highway No. 6; Lancaster road from city limits, on Ewing Ave., Oak Cliff, to Ellis County line, through Lisbon and Lancaster; rock macadam base; 1½-in. asphaltic binder course surface; 1-in. sheet asphalt toping. (Lately noted.)

Tex., Dallas—S. R. Aldridge, Mayor, let contract to Uvalde Paving Co., San Antonlo, Tex., at \$14,721.10 to pave Mont Clair Ave, in Oak Cliff, from King's Highway to 12th St. Will receive bids for paving Collin St. from

Lamar to Jefferson.

Tex., Fort Worth—Tarrant County, W. E. Yancey, County Auditor, let contract to General Construction Co., Fort Worth, at \$3588.87, to surface N. Main St. from Marine Creek to 28th St.; 4222.2 sq. yds. 1-in. rock

22.

= Clk

8 8t.

man

Lo-

rens

rena

L. P.

ash-

oton,

yor,

ept.,

v. 6.

ing;

Ry-

ville

Aid

Me-

ash-

.929

, ar

for

Rt.

dis-

let

rom

ege:

ohn

hen

mra

A.

mi.

. 5;

. J.

Con

eon-

vd.;

mrs.

con-

for 1.08

. 6:

ugh

l-in

let

nio.

ve.,

St.

rom

rine

nek

C.

asphalt; cold mixed; Project 2-A. (Lately noted.)

Tex., Fort Worth-City Comsn., plans paving highway from Park Place Ave. to Harvard St.; City Secy. will invite bids soon.

Tex., Houston—O. F. Holcombe, Mayor, plans expending \$1,500,000 for paving, including 2 new highways to Houston Heights, from North Side and South End; Polk Ave. from business district, through Eastwood toward Harrisburg; Dumble St., connecting Mc-Kinney Ave, with Harrisburg Blvd.; Washington Ave, from business district to Heights; Preston Ave. to Dowling St.; Dowling St. from Preston Ave. to Holman; plans graveling 32 atreets.

Tex., Lagrange—Fayette County plans improving roads on main highways, leading to Houston, San Antonio, and branch lines; plans issuing bonds; also contemplates con-structing bridge over Colorado River. Address County Commrs.

Tex., Linden-Cass County, Road Dist. No. 16, plans building road and bridge; voted \$20,000 bonds; H. D. Nelson, County Judge, Linden; Hass & Skinner, County Engrs., Southwestern Life Bldg. Dallas, Tex.

Tex., Lufkin—Angelina County Commrs. Court. For full details see Mchy. Wanted— Road Construction.

Tex., Mason-Mason County Commrs., plans building State Highway No. 9 from Mason, north; vote Nov. 4 on \$9000 bonds; J. T. Banks, County Judge; Joe Gresham, County

Tex., Navasota-Town will improve streets, voted \$90,000 bonds; install sewer system, voted \$50,000 bonds; purchase city park voted \$10,000 bonds. Address The Mayor. (Lately noted.)

Tex., Orange—Orange County, E. C. Mc-Carver, County Judge., will receive bids until Nov. 13 for following:

7.3 mi. Mauriceville road; shell or gravel surfacing.

2 mi. Oil Field road; concrete paving.

4.15 ml. Oil Feld road; shell or gravel surfacing.

1.25 mi. Lower Beaumont road; with gravel surface, and 3 mi. shell or gravel surface.

Extend city streets; concrete paving. 18.5 mi. grade and 5.1 mi. surfacing sec-

tions of Terry Doty, Mauriceville, Lemonville and Newton roads. 10.66 mi, East Texas Highway No. 8;

grade and construct drainage structures; surface 3 mi, with shell or gravel; J. E. Johnson, County Engr. (Lately noted bids opened Oct.

Tex., New Boston-Bowie County. For full details see Mchy. Wanted-Road Construction.

Tex., Palestine-Anderson County Commrs, Court, plans road improvement; vote Nov. 21 on \$1,500,000 bonds. (Lately noted.)

Tex., Paris—Lamar Gunty, W. L. Hutchinson, County Judge, plans following:

Surface 9.9 mi. State Highway No. 19, north of Paris; gravel; \$63.500.

Surface 9.24 mi. State Highway No. 19, south of Paris; sledged limestone rock base; gravel top; \$75,200; W. M. Fooshee, County

Tex., Pearsall—Frio County, will build 2 roads. For full details see Mchy. Wanted— Road Construction.

Tex., Sequin—Ch. Engr., U. S. Bureau of Public Roads, Washington, D. C., approved plans for 3.4 ml. 15-ft. gravel bituminous road on State Highway No. 3; Guadalupe County; \$36,744; Hess & Skinner, Engrs., Southwestern Life Bldg., Dallas, Tex.

Va., Hillsville-State Highway Comsn., H. G. Shirley, Chrmn., Richmond, Va., contemplates building Fancy Gap road from Hills- (Previously noted.)

ville, Carroll County, to North Carolina State

Va., Petersburg-Louis Brownlow. City Mgr., plans expending \$150,000 to re-pave Sycamore St. from Grove Ave. to Wythe St., and W. Washington St. from Sycamore to city limits.

Va., Richmond-Allen J. Saville, Director of Public Works, plans grading and graveling Chamberlayne Ave. north of Maplewood Ave. to Bellevue Ave.; improving Grove Ave. between Gilmore St. and Roseneath Road.

Virginia—State Highway Comsn., Rich-Richmond, Va., let contracts for following projects:

256, Route 11-1.99 mi, 16-ft. bituminous macadam road between Burkes Garden Siding

and Tazewell, Tazewell County, to G. T. Franklin & Co., Bassette, Va., at \$41,448.01.

130, Route 21—.90 mi. 12-ft. surface treated macadam road from Greenwich to Milford Mills, Fauquier and Prince William Counties; to L. J. Chandler, Virgilina, Va., at \$18,502.25.

203. Route 21-1.4 mi. 12-ft. surface treated macadam road from New Baltimore to Greenwich; to L. J. Chandler, Virgilina, Va., at \$29,694.45. (Lately noted.)

West Virginia-State Road Comsn., Charleston, W. Va., let contracts for following:

1.9 River road from Grape Island to Raven Rock; gravel surface; Pleasants County, Project No. 58; to Smith & Quinn, Parkersburg, W. Va., at \$21,900.

3 mi, road on Welch-Coalwood road; grade and asphalt paving; McDowell County Project No. 3153; to Rogers & Shumway, Worthington, W. Va., at \$134,965.

W. Va., Grafton—City plans extending Boyd St., through Ward property. Address The Mayor.

W. Va., Huntington-City. For full details see Mchy. Wanted-Paying.

W. Va., Mannington-City Comen, plans paving Furbee and Beaty Aves.; additional paving in Clayton Addition: Rose St. from Main St. to planing mill, with crushed stone; also several side streets with crushed stone or cinders.

W. Va., Martinsburg-State Road Comsn., Charleston, W. Va. For full details see Mchy. Wanted-Road Construction.

Sewer Construction.

Ala., Reform-For full details see Water

Fla., Jacksonville-City opens bids Nov. 16 for construction of storm water and sanitary sewers on various streets, approx. 2 mi. \$250,000 available. Address The Mayor. (Lately noted.)

Ga., Waynesboro - For full details see Water Works.

La., Covington-For full details See Mchy. Wanted-Water Works and Sewerage System.

La., Monroe-City let contract to Blodgett Construction Co., Shreveport, to construct pumping station at Calypso St. (Lately noted.)

Md., Rockville-For full details see Water Works.

Mo., Bunceton-For full details see Water Works.

N. C., Asheboro-The Makenworth Co., J. S. McAllister, Secy. and Treas. let contract to A. B. Copenhaver, for paving and sewer extension and water supply in connection with development of 32 acres for homesite; 6-in, and 8-in. pipe; approx. cost \$5000; Frank T. Miller, Consit. Engr., Greensboro.

N. C., Lincolnton-For full details see Water Works. N. C., Marshville-For full details, see

Water Works.

N. C., Wilmington-For full details see Land Developments .

Okla., Cushing-For full details see Water

Okla., Oklahoma City—Board of Public Works, Warren E. Moore, Commrs., will con-struct sanitary sewer system in East Capitol

S. C., Clover-For full details See Water Works.

S. C., Ridgeway-For full details See Electric Light and Power Plants. 1004

S. C., Westminister-For full details see Water Works.

Tenn., Johnson City-City let contract to Mack Construction Co., for 18,000 ft. of sewer construction.

Tex., Dallas-City let contract to Cramer Mfg. Co. for constructing storm sewer on Patton Ave. from Lake Cliff to Ninth St.

Tex., Navasota-For full details see Road and Street Construction.

Tex., Orange—City, A. J. Willison, Engr., will construct storm sewer system.

Tex., Terrell-City will install sewer system. Address The Mayor.

Tex., Waxahachie-For full details see Water Works.

Tex., Tulia-For full details thee Water Works.

Shipbuilding Plants

Tex., Orange—Orange Car & Steel Co., changed name from Southern Dry Dock & Shipbuilding Co. (Lately noted increased capital to \$200,000.)

Telephone Systems.

Ala., Birmingham-Postal Telegraph Co., 15 N. 20th St., let contract to Smallman-Brice at \$10,000 to remodel building.

W. Va., Logan-Chesapeake & Potomac Telephone Co. of West Virginia let contract to H. Persun, Huntington, W. Va. to erect 1 story, 25x70-ft. building, tapestry brick; metal sash windows; install heating plant arranged for either gas or coal,

Textile Mills.

Ala., Selma-Selma Mfg. Co., : J, F, Ames, Prop., will install electric equipment,

Ark., Helena-Delta Land Co., Arthur H. Lowe and others acquired Goodson-Howard Cotton Mills; will probably equip mills for mfre .of ginghams; install looms, dyeing departments, etc.

Ga., Athens-Mallison Braided Cord Mills, L. F. Edwards, Prest., will rebuild mill burned at loss of \$150,000.

La., New Orleans-Lane Cotton Mill, Leake Ave. and Cadiz, let contract to Geo. J.: Glover, for \$35,000 addition to plant; brick with milled flooring.

N. C., Gastonia-A. M. Smyre Mfg. Co., increased capital to \$500,000.

N. C., Stanley-Ginghams-Lola' Gingham Mills, A. C. Taylor, Secy., let contract to J. A. Gardner, Charlotte, to construct build-100x260 ft.; fireproof; cost \$250,000; will install 250 looms, contract for mehy. let. (Lately noted.)

S. C., Anderson-Jos. J. Fretwell interested in establishment of mill by Mason Machine Co.; 15,000 spindles.

Tenn. Maryville-Ideal Hosiery Mills planning installation of additional equipment.

Tex., Bonham-Consolidated Textile Corp.,

Bonham Division, contemplates erection of additional building.

Va.. Altavista—Altavista Cotton Mills, C. N. Cumnock, Secy., capital \$750,000, will erect buildings, 1 story, 130x125 ft. and 2-story, 100x125 ft., for mfre. of cotton and silk novelties; daily capacity 20,000 yds.; estimated cost \$100,000; will open construction bids in December; install 13,356 spindles; 300 looms; \$25,000 plant to develop 300 H. P.; cost of mchy. \$260,000; contract for equipment let to Fales & Jenks Machine Co., Pawtucket, R. I.; Woonsocket Machine & Press Co., Woonsocket, R. I.; Draper Corp., Hopedale, Mass.; Lockwood-Greene Co., Archt.-Engr., in charge, Charlotte, N. C. (Lately noted.)

Water Works.

Ala., Birmingham — City will improve North Birmingham water works and electric light plant. Wm. L. Harrison, Chrmn. Public Utilities.

Ala., Reform—City will install water and sewer systems; cost \$25,000, J. B. McCrary Co., Engrs., Atlanta.

Fla., Groveland—City, Chas. J. Anderson, Chrmn. of Streets and Sanitation, considering installation of water system, lights and construction of ice plant. (See Mchy. Wanted—Water Works; Electric Lights; Ice Plant.)

Ga., Atlanta—City, Walter C. Taylor, Clk., will extend water pipe line on various streets at cost of \$150,000.

Ga., Waynesboro—City will install water works and sewer system, cost \$100,000; J. B. McCrary, Engrs., Atlanta.

Ky., Lexington—Lexington Water Co., change of name from Lexington Hydraulic & Mfg. Co., increased capital to \$3,700,000.

La., Broussard—City, R. N. Bernard, Mayor, will expend \$30,000 for water works system; J. B. McCrary Engineering Co., Engrs., Atlanta, Ga. (Lately noted to vote Oct. 31 on bonds.)

La., Covington-For full details See Mchy. Wanted-Water Works and Sewerage System.

La., Plaquemine—City will construct water and light plant; voted \$150,000 bonds. Address The Mayor.

Md., Rockville — Washington Suburban Sanitary Comsn., Washington, D. C., purchased water and sewer system.

Md., Williamsport—City will install water works system, voted \$100,000 bonds. Address The Mayor.

Mo., Bowling Green—City defeated \$85,000 water works bonds, will issue new call for bids. Address the Mayor.

Mo., Bunceton—City will have plans and estimates prepared for construction of water and sewer system; will probably vote on bonds. Address The Mayor. (Lately noted.)

Mo., Paris—City will extend and improve water works system, voted \$19,000 bonds, construct electric light plant, voted \$16,000 bonds, build ice plant, voted \$22,000 bonds. Address The Mayor. (Lately noted.)

Mo., St. Charles—City, Otto Boekemeier, Clk. retained Arthur L. Mullergreen, Constr. Engr., Kansas City, to prepare estimates, etc. for complete water pumping plant.

Mo., Webb City—City granted 50-year franchise to Webb City Water Works.

N. C., Asheboro—The Makenworth Co., J. S. McAllister, Secy. and Treas, let contract to A. B. Copenhaver, for water supply, sewer extension and paving in connection with development of 32 acres for homesite; cost about \$6000; Frank T. Miller, Conslt. Engr., Greensboro. (Previously noted.)

N. C., Lincolnton-City will extend and

improve water, sewer and electric light systems; \$180,000 available. Address The Mayor.

N. C., Marshville—City will install water, sewer and electric system; cost \$140,000; J. B. McCrary Co., Engrs., Atlanta.

N. C., Wilmington-For full details see Land Developments.

Okla., Cushing—City retained Webster L. Benham of Benham Engineering Co., Consit. Engr., Kansas City, Mo. for water supply, water works, sewer extension, sewage disposal plant for city of 20,000 population; will vote on bond issue; O. Block, City Engr. (Lately noted.)

Okla., Taloga—City considering installation fo water works system. Address The Mayor,

S. C., Clover—City will install sewerage system and install water works, voted \$65,000 bonds. Address The Mayor. (Lately noted.)

S. C., Ridgeway—For full details See Electric Lights and Power Plants.

S. C., Westminister—City will install water Works and sewer system, have engaged Ryan Engineering Co., Columbia, to prepare plans, estimates, etc.

Tenn., Madisonville—City contemplates installing water works system. Address The Mayor.

Tenn., Memphis—Memphis Artesian Water Dept., opens bids Nov. 24 for following work; Contract No. 7-Superstructures of pumping station, removal plant and aerator, chimney, traveling crane and filter equipment; Contract S-Coal and ash handling system; Contract No. 9, Centrifugal low lift pumping unit; Contract No. 10, Engines, generator and switchboard; Fuller & McClintock, Engrs., Produce Exchange Bldg., Kansas City, Mo.; Jones & Furbinger, Archts., Porter Bldg. (Lately noted.)

Tex., Celina—City will erect light plant and water works system, votes Nov. 28 on \$50,000 bonds; J. E. Ousley, Mayor.

Tex., Raymondville—For full details see Electric Light and Power Plants.

Tex., Rotan—City will install water works system, votes Nov. 28 on \$50,000 bonds. Address The Mayor.

Tex., Tulia—City will construct light, water and sewer system; voted \$100,000 bonds. Address The Mayor.

Tex., Waxahachie—City has plans for extension of water mains and sewer system. Address The Mayor.

Tex., Wylie—City will construct water works system, votes Nov. 9 on \$50,000 bonds. Geo. H. Housewright. Mayor.

Va., Elkton—Town, C. W. McGuire, Secy. contemplates installation of new system or construction of new system for population of 1200, will vote on \$75,000 bonds. (Lately noted.)

W. Va., Huntington—City contemplating improvements to water supply. Address The Mayor.

W. Va., Martinsburg—City considering improvements to water works system, may increase capacity of reservoir and install auxiliary pump ,etc. Address The Mayor.

Woodworking Plants.

Fla., Daytona—Sash, Doors, etc.—Company organized with W. A. Hoffman, Prest, and E. E. Burleigh, Secy.-Treas.; plans erecting building on 383x156 ft. site; install motor driven mchy.

Miss., Hattiesburg—Flooring—Acme Flooring Co., organized with Charles H. Ruddock, Prest., New York; Hugh S. Currie, Secy. Trens., New Orleans, La.; build plant and

equip for mfre. of hardwood flooring; approx. cost \$50,000.

Miss., Lumberton—Ashbrook Veneer Co., (lately noted incptd.) organized with C. B. Ashbrook, Prest-Mgr. has under construction plant with daily output of 20,000 ft. B. M. rotary cut veneer; majority of mchy. purchased. (See Mchy. Wanted—Fans (Exhaust); Trucks (Kiln); Shingle Mill.)

New Orleans—P. C. Doerr Furniture Co., capital \$60,000, incptd. with P. C. Doerr, Prest.; A. P. Underwood, Secy. Treas.

S. C., Greenville—J. M. Steele Furniture Co., incptd, with J. M. Steele, Prest. Treas.; J. D. Fortner, Secy.

FIRE DAMAGE

Ala., Birmingham—Crumpton Hall at Howard College, 7918 Underwood Ave.; Dr. Jno. C. Dawson, Prest.

Ala., Birmingham—J. A. Metcalfe's residence, 1242 18th Ave., South; damage to residences of J. D. Hall and J. C. Stallings; loss \$10,000.

Ala., Mobile—Taylor-Lowenstein Wholesale Grocery Co.'s building on Commerce St.; loss \$40,000.

Ark., Blytheville—Phoenix Cotton Oil Co.'s gin; loss \$20,000.

Ark., Fulton—J. B. Schultz's gin and seed house; loss \$8000.

Fla., Jacksonville — Washington Hotel, 510 ½ Broad St., Bessie Washington, Prop.

Fla., New Smyrna—Harry Colee's residence, Washington St.

Fla., Wauchula—Albert Carlton's packing plant; loss \$20,000.

Ga., Athens—Mallison Braided Cord Mills; loss \$150,000. Ga., Rome—Geo. B. Updegrove's residence

on Summerville Rd.; loss \$12,000.

Ga., Social Circle—T. A. Stanton's ware house.

La., New Orleans—Lafayette Sugar Refinery's plant; loss \$50,000; A. B. Danbo, Mgr.

La., Shreveport—Leslie C. Lloyd's residence, 941 Ontario St.; 1088 \$15,000.

Md., Cambridge—Dorchester Fertilizer & Lime Co.'s shell mill; loss \$60,000.

Md., Loch Raven—Two barns at Maryland Training School for Boys, Leon C. Faulkner, Supt.; loss \$30,000.

Md., Westover—Chas. Poleyette's barn; loss \$20.000.

Miss., Lakeview—Lakeview Hotel (address The Proprietor); H. W. Fritz's store,

Miss., Lexington—Eric Norquist's store.
Miss., Long Beach—R. Inglis Mfg. & Comsu.
Co.'s ice plant; loss \$12,000.

Miss., Water Valley—Lee A. Jones' apartment house.

Mo., Independence—Horne Zoological Arena Co.'s 6 buildings; loss \$30,000; E. P. Horne,

Mo., St. Joseph—St. Joseph Country Club's building: loss \$60,000

N. C., Charlotte-Holiness Church, Colored, Biddleville. Address The Pastor.

N. C., Kinston—Building at 109 Blount St. occupied by Kinston Battery Co., Kinston Vulcanizing Co. and Jackson Mattress Co.; total loss about \$9000.

N. C., Rocky Mount—Atlantic Const Line R. R.5s warehouse; J. E. Willoughby, Chief Engr., Wilmington.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

De

ro

ste

pa

R.,

Ell

ste

to

cer

kit

Ar

\$1,

an

Okla., Kingfisher-Kingfisher Furniture Co.'s building; loss \$25,000.

Okla., Muskogee-Vandome Hotel, owned by O. P. M. Butler. Tenn., Cookeville-Dr. J. B. S. Martin and

I. D. Staley's stores.

Tenn., Dyersburg-George E, Scott Lumber Co.'s yard, and adjoining store and cotton shed; total loss \$135,000.

Tenn.. Flag Pond-Lee W. Sams' store; loss \$10,000.

Tenn., Hickman-Bank of Hickman and 5 business buildings; loss \$30,000.

Tenn., Memphis-Plough Chemical Co.'s warehouse; Abe Plough, Prest.; loss \$125,000.

Tenn., Nashville-Tennessee Central Ry. Co.'s yards, 3 adjoining buildings, engines, etc.; loss \$400,000. Address H. R. Manby, Chief Engr.

Tex., Brenham-Washington County Warehouse Co.'s building; Jno. Lehman, Mgr.

Tex., Dallas -Dallas Paper Co.'s building at 2211 Laws St,; loss approx. \$60,000.

Tex., Gonzales-Houston Cotton Oil Co., and International Cotton Co.'s warehouses

Tex., Hillsboro-Woodbury Co.'s gin and seed house; loss \$10,000.

Tex., Jacksonville-Jacksonville Oil Mill Co.'s plant; W. G. Crumpler, Prest., Athens, loss \$150,000.

Tex., Lyons-E. J. Knesk's cotton gin; loss \$15,000.

Tex., Pittsburg-Clayton Apartment House, owned by Will S. Clayton; loss \$10,000.

Tex., Plainview-W. M. Turner's garage and Dr. J. A. Ferguson's residence; total

Tex., Mart-Clayton & Been's garage; Mc-Adams Lunch Room; Queen Theater; Masonic Hall: loss \$25,000.

Tex., Sweetwater-Jno. R. Cox and Sweetwater Dry Goods Co.'s buildings, owned by Chas. McFarland, Weatherford.

Tex., Terrell-Olympia Confectionery; W. C. Andrew's store.

Va., Portsmouth-Vining's auto supply station, cor. Lincoln St. and Deep Creek Blvd.

Church, Dr. R. A. Law, member Board of Elders, plans addition.

Tex., Brownwood-First Methodist Church plans building in South Brownwood; also building downtown. Address The Pastor.

Tex., El Paso-Austin Park Christian Church, Rev. Arthur W. Jones, Pastor, will erect \$25,000 unit of \$45,000 church, Savannah and Montana Sts.; Lehmann & Wuehrmann, Archts.; construction begun. (Previously noted.)

Va., Bedford-St. John's Episcopal Church, J. A. Clark and others, Bldg. Comm., plans \$25,000 building, N. Bridge St.

Va., Petersburg-Tabb Street Church will erect \$25,000 3-story addition in rear of present building. Address The Pastor.

Va., Portsmouth-Jackson Memorial Baptist Church, W. A. Vance, Chrmn. Bldg. Comm., will erect \$60,000 building. Prentis Ave. and Randolph St.; brick and stone; 75.6x85.6 ft.; 2 stories; concrete foundation; wood floors; slate, felt and gravel, and tin roof; steam heat; Chas. M. Major, Archt., Commercial Bldg.; will take bids after Jan. 1, work to begin April 1. (Lately noted.)

City and County.

Ala., Birmingham-Auditorium-City, D. E. McLendon, Prest. City Commrs., will erect \$400,000 municipal auditorium; fireproof; steel frame; hollow tile and face brick; terra cotta trim; asbestos tile roof; 70-ft. dome; metal frames an dsash for windows; cement plaster interior finish; low pressure steam heat and ventilating system: 14 stairways to mezzanine promenade and gallery; first floor to acommodate 8500; assembly room on mezzanine floor to seat 600; H. D. Breeding, Archt. (Lately noted.)

Fla., Miami-Comfort Station-City, Frank A. Wharton, Mgr., will erect comfort station on water front, south of Elser pier; 48x50 ft.; concrete block stucco; A. E. Lewis, Archt.; bids opened Oct. 31. (Lately noted.)

Ky., Louisville-Morgue-Board of Public Safety, Chas. F. Huhlein, Chrmn., plans morgue on City Hospital grounds.

Mo., Crocker-Jail-City will erect jail: concrete; steel doors; construction begun. Address The Mayor.

Miss., Jackson-Auditorium-Armory-City and Hinds County will erect \$100,000 auditorium-armory building, Congress and Pearl Sts.; 160x160 ft.; concrete foundation; steel frame; concrete floors; composition roof; N. W. Overstreet, Archt.; bids opened in December. (Lately noted.)

N. C., Asheville-Fire Station-City will erect fire station in West Asheville; bids opened Nov. 6. Address R. L. Fitzpatrick, City Commr.

N. C., Elizatbeth City-Fire Station-City will erect hook and ladder house. Address The Mayor.

Va., Wise-Detention Home-Wise County Board of Public Welfare, Dr. N. F. Hix, Wise, plans detention home for delinquent girls; also paupers' home.

Courthouses.

Tex., Post-Garza County, H. G. Smith, County Judge, will erect courthouse and jail building: \$82,000 bonds available.

W. Va., Harrisville-Ritchie County will erect \$150,000 courthouse; Holmboe & Pogue, Archts., 653 Empire Bldg., Clarksburg; bids in 60 days.

Dwellings.

Ala., Tuscaloosa-M. I. Harper will erect 4 bungalows on 11th St. D. C., Washington-S. Shaperio will erect

BUILDING NEWS

BUILDINGS PROPOSED

Apartment Houses.

Fla., Miami Beach—W. F. Carter, Miami, purchased lot 4, block 16, Lummus Park, and plans building.

Mo., Kansas City-G. H. McCanles will erect two 3-story buildings, 615-17 and 619-21 E. Armour Blvd.; brick; \$65,000 each.

Mo., Kansas City-Chas. E. Phillips will erect 3-story apartment flats, 1215-17 and 1219-21 E. Gilham Rd.; \$17,000 each; brick.

N. C., Charlotte-Dr. R. Z. Linney will erect \$20,000 to \$25,000 building, N. Mc-Dowell St.; 2 stories; brick veneer; 4 fiveroom apartments; Franklin Gordon, Archt.; also plans another building later. (Lately

Tex., Houston-W. M. Strozier will erect \$13.000 flat; 2 stories; 4 suites; also 4 onestory frame garages, 408 Pierce Ave.

0,

d-

&

ıd

99

m.

ie.

h's

eđ,

ine

Va., Richmond-W. B. Catlett will erect 3story brick apartment house, 414-16 N. Sheppard St.; \$45,000.

Association and Fraternal.

Ga., Gray-Oliver Morton Chapter, D. A. R., plans chapter house.

La., New Orleans-Benevolent Protective Order of Elks will rebuild burned portion of Elks Home in Elk Place; \$125,000; fireproof; steel and concrete; gymnasium; auditorium to seat 1800; probably enlarge swimming pool; heating and ventilating systems; Rothbone DeBuys and E. A. Christy, Asso. Archts. (Previously noted.)

Miss., Clarksville-Ancient Free and Accepted Masons will erect temple.

Mo., Kansas City-Minute Circle will erect building, Denver Ave, and 15th St.; 3 srories; brick; clinic, operating ${\rm room}_s$ diet kitchen, etc.; Owen, Payson & Carswell, Archts

Bank and Office.

La., Shreveport-J. B. Slattery will erect \$1,000,000 bank and office building. Texas and Marshall Sts.; 161/2 stories and basement; site 80x150 ft.; probably brick and terra cotta with granite base; 4 highspeed electric passenger and 1 freight elevator; Mann & Stern, Archts., Little Rock, Ark. (Lately noted.)

N. C., Rockingham-Farmers Bank of Rockingham, Leake S. Covington, Vice-Prest.-Cashr., will erect 3-story bank building; lime-

stone, terra cotta and pressed brick.
Ga., Atlanta—Geo. F. McGlawn and S. W. Bowen, both care American Nat. Insurance Co., plan 8-story office building, Luckie and Fairlie Sts.; \$200,000; 91 to 95 offices; 4 stores on ground floor.

Mo., Kansas City-J. North Mehorney will erect shop and office building, 14th and Walnut Sts.; fireproof; probably 2 stories at present; provision for 4 additional floors.

Va., Lynchburg-City, Mr. Beck, City Mgr., will remodel Friends Warehouse for office building; about \$18,000 exclusive of vault.

Churches.

Ala., Elba-Church of Christ, Rev. W. T. Grider, Pastor, will erect building.

Ala., Gadsden-First Presbyterian Church, Rev. F. P. Anderson, Pastor, will erect Sunday school annex.

D. C., Washington-Holy Name Catholic Church, Rev. Thos. J. Kervick, Pastor, will erect \$75,000 building, 11th and K Sts.; type; remodel present building for parochial school to accommodate 350 to 400.

Ga., Savannah-Second Baptist Church will erect \$200,000 building; limestone; Gothic type; 4 stories; auditorium to sent 1200; Sunday school to accommodate 1500; N. S. Hamilton, Archt., Atlanta.

La., Lafayette-Methodist Church plans building. Address The Pastor.

Monroe-First Baptist Church will erect Sunday school and social service building. Address The Pastor.

Mo., Wardsville-Catholic Church will erect building; limestone; brick trim; construction begun. Address The Pastor,

S. C., Pageland-Baptist Church plans brick building. Address The Pastor.

S. C., Union-Mt. Lebanon Baptist Church, Rev. H. Haydock, Pastor, will erect building. Presbyterian Tex. Austin-University

8 dwellings, 908-22 Farragut St., N. W.; \$40,000; 2 stories; brick; owner builds.

Fla., Apalachicola—Wm. Lee Popham will erect 100 concrete bungalows on St. George Island, Gulf of Mexico, near Apalachicola. (See Mchy. Wanted—Concrete Mixers; Building Material.)

Fla., Bartow—Lake Garfield Investment Co., Inc., Guy Ridge, Prest., purchased 240 acres of land and plans to develop and plant in citrus trees; will erect frame farm buildings.

Fla., Eustis-Presbyterian Church will erect \$15,000 parsonage. Address The Pastor.

Fia., Miami Beach—Wm. Whitman will erect 16 dwellings in Spanish villa development; \$250,000; Hampton & Reimert, Archts., Miami.

Fla., Okahumpka—Cleveland Grays will erect number of cottages.

Fla., Umatilla—Frank D. Berry purchased 15 lots and will erect dwellings.

Fla., Valrico—Valrico Highlands Citrus Corp., W. T. Miller, Prest., Tampa, will erect superintendent's home.

Ga., Macon—Kingman Moore will erect \$14,400 brick veneer dwelling, Oak Haven Ave.

Ky., Millstone—Elkhorn, Jr. Coal Co., wilt erect 10 miners' houses; contract within 2 weeks. Address P. W. Slemp, Mgr.

Ky., Praise—Elkhorn-Shelby Coal Co. will erect 12 miners' houses and coal tipple.

Ky., Shelby Gap—Shelby Gap Coal Co., will erect 20 miners' houses and coal tipple.

Ky., Storm King-Storm King Coal Co., will erect number of miners' houses; contract at once.

Ky., Yeager-Yeager Coal Co. will erect 12 miners' houses; contract at once.

La., New Orleans—S. E. Greve will erect \$10,000 dwelling. Elk St. near Lopez St.

Md., Baltimore—James Keelty, 1123 Poplar Grove St., will erect 14 dwellings, 600-26 Grantley St.; \$40,000; 20x34 ft.; 2 stories; brick; owner builds.

Md., Baltimore—Philip S. Morgan & Co., Inc., 12 E. Lexington St., will erect 8 2story brick dwellings, 3215-29 Brighton St.; \$30,000.

Md. Baltimore—Elmer W. Sarbacher, 1013 Hillen St., will erect six 2-story brick buildings, 5000-10 Litchfield Ave.; 23x40 ft.; \$18,-000; plans and construction by owner.

Md., Baltimore — George Schnader, 115 N. Chester St., will erect 15 cottages on Gebb and Batavia Aves.; \$90,000; 2 stories; concrete foundations; asphalt roofs; hardwood floors; interior tile. (See Mchy. Wanted—Plumbing; Heating Plants; Plastering; Electric Wiring and Fixtures; Furnaces.)

Md., Baltimore—John K. Eareckson, 814 N. Stricker St., will erect 3 bungalows, N. W. cor. Glen Ave. near Cloverdale Rd.; \$13,000; 1½ storles; frame.

Md., Baltimore—Bowling Construction Co., will erect 13 dwellings, 4007-31 Norfolk Ave.; 2 stories; brick; two, 22x36 ft.; eleven 18.9x-30 ft.; steam heat; \$35,000; Adolph C. Dreyer, Archt., 875 Park Ave.; owner builds.

Md., Baltimore—Henry S. Dulaney, 517 W. Lombard St., will erect 5 dwellings, N. E. cor. York Rd. and Willow St.; \$25,000; 2 stories; brick.

Md., Baltimore—Thos. F. Mullan will erect 12 dwellings, south side Cator Ave., east of Starr La.; 2 stories; brick; Carey roofs; steam heat; also 16 one-story brick garages; \$25,000; Plaza Engineering Co., Archt., 416 E. Lexington St.; owner builds

Md., Halethorpe-Catholic Church of the

Ascension, will erect rectory; Hugh I. Kavanaugh, Archt., 913 N. Calvert St., Baltimore.

Mo., Kansas City—Agee-Block Construction Co. will erect \$15,000 dwelling, 3728 Holmes St.

Mo., Kansas City—Bigham Building Co. will erect dwellings, 201, 207, 211 W. 51st St.; \$8000 each; frame; also 217 and 221 W. 51st St.; \$9000 each.

Mo., Kansas City—Geo. Bliss Constr. Co. will erect \$10,000 brick building, 3742 Tracy Ave., and \$2000 building, 3535 Monroe Ave.

Mo., Kansas City—Geo. A. Heffin & Son will erect 6 dwellings at 2310-20 Bates Ave.; \$12,000.

Mo., Kansas City—Quality Builders, Inc., will erect 8 dwellings, 1104, 1111, 1115-25 W. 40th St.

Mo., Kansas City—Geo, Boden purchased tract at 35th St. and Cleveland Ave., and will erect 15 dwellings.

Mo., Kansas City—Joe. F. Gier will erect \$11,000 dwelling, 510 E. 54th St.; also \$9000 dwelling, 6224 Pennsylvania Ave.

N. C., Asheville—L. B. Jackson & Co., purchased 36 lots in Kenilworth Park, and plan a number of 2-story and bungalow type dwellings.

N. C., Rockingham—Faith L. Covington will improve dwelling; install heating, plumbing, etc.

Okla., Muskogee—D. T. Mosier will erect Colonial dwelling, Capital Pl.; 2 stories; brick; and concrete; hardwood floors; Lox-on shingle roof; concrete and brick basement, 18x20 ft.; Barnes & McCoy, Archts.

S. C., Columbia—Palmetto Realty Co., will erect one dwelling, 2200 block and three, 2000 block College St.; \$4000 each.

Tenn., Memphis—M. H. Palmer will erect 2 dwellings, 225-236 N. Auburndale St.; 6 and 7 rooms; brick veneer; about \$9000; heat-\$500 each.

Tenn., Memphis—Mrs. P. B. Russell will erect \$35,000 residence; half timber, brica, stucco, hollow tile and stone; slate roof; refrigerating. lighting, water and sewerage plant; garages and servants quarters; J. Frazier Smith, Archt.

Tex., Dallas—Rick & Hurt will erect nine 6-room frame cottages; total \$27,000.

Tex., Houston—Mrs. A. W. Crawsbay will erect \$15,000 dwelling and garage, Avondale Ave.; 2 stories; 11 rooms; brick veneer.

Tex., Houston—Mrs. Norma E. Page will erect \$10,000 bungalow and garage, Oak St. and Oak Pl.; 7 rooms; brick veneer.

Tex., Houston—Damon Wells will erect \$5000 dwelling and garage, 1607 Sul Ross Ave., and \$5000 dwelling and garage, Kipling St.; both 6 rooms.

Tex., Houston-W. B. Bowles will erect \$10,000 dwelling. Chestnut and 11th Sts.; 6 rooms; brick veneer.

Tex., Houston—Russell-Brown Co. will erect \$12,000 dwelling, Montrose and Kipling Sts.; 2 stories; brick veneer; for Dr. J. A. Hill.

Tex., San Antonio—C. T. Fincher will erect \$10,000 dweling in Gramercy Pl.

Va., East Radford—Lynchburg Foundry Co. plans 20 cottages in West End.

Va., Norfolk—Seth Borum, Arcade Bldg., will erect \$10,000 dwelling, Westover Ave.; 2½ stories; 25x52 ft.; brick; Wickham C. Taylor, Archt., Citizens Bank Bldg.

Va., Norfolk—Louis Dobie, care Dobie & Bell. 227 Plume St., will erect 2½-story dwelling; 40x60 ft.; Calrow & Wrenn, Archts.

Va., Richmond—Lewis Kaufmann will erect \$23,455 dwelling, 804 Westover Rd.; frame and stucco.

Va., Richmond—W. W. Workman will erect brick dwelling, 2801 Semmes Ave., South Richmond; \$15,000.

Va., Richmond—Otis K. Asbury, 110 N. 7th St., is preparing plans for 2 dwellings in Byrd Park; \$40,000; 2 stories; brick; also prepared plans for \$30,000 dwelling in Byrd Park; 2 stories; 65x40 ft.; brick, frame and stucco.

Va., Richmond—J. H. Harrison, care West Disinfecting Co., 207 E. Main St., will erect \$10,000 dwelling, Ginter Park; 2 stories; 26x40 ft.; brick or stucco; G. Herbert French, Archt., Times Dispatch Bldg.

Va. ,Richmond—H. Wm. Nolde, care Nolde Bros., Inc., 2512 E. Broad St., will erect \$16,000 dwelling, Ginter Park; 2 stories; 64x35 ft.; brick; Benton & Bengston, Archts., 4 S. 10th St.; owner takes bids about Nov. 1.

W. Va., Charleston—Dr. E. B. Stephenson will erect \$15,000 dwelling, 1603 Virginia St.; 2 stories and basement; 22x48 ft.; brick and tile; Warne, Tucker & Patterson, Archts.. Masonic Bidg. (Lately noted.)

W. Va., Charleston—W. R. Johnson will erect brick and tile dwelling, Hall Ave.; 2 stories and basement; 28x36 ft.; Fred Crowther, Archt., Morrison Bidg.

W. Va., Charleston—B. C. Newcomb, Day & Night Bldg., will erect \$15,000 dwelling, Hall Ave.; 2½ stories and basement; 27x30 ft.; stucco on frame; day labor.

W. Va., Charleston—R. R. Wolfe will erect \$25,000 dwelling, Kanawha St.; 2 stories and basement; 38x50 ft.; brick and tile; W. F. Martens, Archt., Boyd Bldg.

W. Va., Huntington—C. L. Cavendish, 830 Jefferson Ave., will erect \$15,000 dwelling on Jefferson Ave.; 2 stories and basement; 34x38 ft.; brick and tile; R. L. Day, Archt, First Nat. Bank Bldg.

W. Va., Huntington—H. O. Dunfae, 1032½ 16th St., will erect \$30,000 dwelling, 8th St. Hill; 2½ stories and basement; 31x40 ft.; brick and tile; Meanor & Handloser, Archts.; R. & P. Bldg.

W. Va., Huntington—W. O. Sydna, 1305 3rd Ave., will erect \$12,000 dwelling; 2 stories and basement; 36x44 ft.; brick and tile; L. J. Dean, Archt., 6 Foster Bidg.

W. Va., Superior-Superior-Pocahontas Coal Co., will erect 50 employees' dwellings; 2 to 6 rooms; 14 under construction.

W. Va., Warwood—John Neiber will erect \$12,000 double dwelling; 2 stories and basement; brick; Albert F. Daylton, Archt., Valley View Ave., Wheeling.

Government and State.

Md., Baltimore—Death House, etc.—Board of Prison Control, Ogle Marbury, Prest., Fidelity Bldg., will remodel dormitory at State Penitentiary for death house and execution chamber; \$20,000; Theo. Wells Pletsch, Archt., American Bldg.; bids opened Nov 2: (extended date); will receive bids from John Waters Building Co., 23 E. Center St.; West Construction Co., American Bldg.; Lewis-Constr. Co.

Okla., Chandler—Post Office—Treasury Department, Jas. A. Wetmore, Acting Supvrg., Archt., Washington, D. C., receives bids until Nov. 24 to erect post office; drawings and specifications from Custodian at site or from office Supvrg. Archt.

Hospitals, Sanitariums, Etc.

Ala., Jasper—Walker County Hospital, Inc., Dr. A. C. Jackson, Woodward Bidg., Birmingham, will erect \$75,000 brick hospital; 80 beds; 40x150 ft.; 3 stories; composition roof; hollow rileproof tile; concrete and hardwood floors; steam heat; elevator; electric

In writing to parties mentioned in this department, it will be of ad vantage to all concerned if the Manufacturers Record is mentioned.

T

Cl

\$2

Ar

Ar

Tr

str

nat

414 An lights; Wm. Leslie Welton, Archt., Birmingham. (Lately noted.)

Tuscaloosa-Alabama Insane Hos pital, Dr. W. D. Partlow, Supt., will erect 2 reception wards at Bryce Hospital, lately noted; \$75,000 each; 2 stories; concrete to first floor, hollow tile above; brick veneer; concrete and wood floors; D. O. Whillden, Archt., Title Bldg., Birmingham; A. J. Krebbs Construction Co., Atlanta, Ga., contr. for foundations at \$14,000; will award contract for superstructure Nov. 8. (Construction being done by patients on \$30,000 kitchen addition previously noted.)

La., Jackson-East Louisiana Hospital will erect number of buildings at State Insane Hospital; Favrot & Livaudais, Archt., Hibernia Bank Bldg., New Orleans.

Miss. Beauvoir-Jefferson Davis Soldiers Home, Elnathan Tartt, Supt., will erect \$50,-000 hospital; brick; fireproof; provide for additions when needed; Theodore C. Link, Supervising Archt., Mississippi Staet Bond & Improvement Comsn., Jackson.

Tenn., Knoxville-Knox County Tuberculo sis Assn. will erect \$100,000 tubercular hospital at Byerly; concrete foundations; concrete floors; tile roof; Albert B. Baumann & A. B. Baumann, Jr., Archts., 8131/2 Market St.; contract about Dec. 1. (Lately noted.)

Hotels.

Fla., Miami-N. B. T. Roney plans to erect hotel, 5th and Collins Sts.

Ga., Brunswick-Harris King plans \$160, 000 hotel; 8 stories; Daniel & Beutell, Archts., Atlanta.

7.

0

. .

05

al

to.

ect

al-

rd

ch.

2

hn

De-

rg..

and

mon

Inc.

ing-

80

etric

N. C., Statesville-Vance Hotel Co., C. Vance Penkel, Prest., will erect annex; 50 to 600 rooms.

Tenn., Jefferson City-D. L. Butler, Sanford Burnett and Jas. Clayton purchased Mossy Creek Hotel and will remodel.

W. Va., Huntington-Jno. S. Farr will erect 8-story addition to Hotel Farr, 4th Ave. and 9th St.; \$340,000; steel; 200 rooms; Meanor & Handloser, Archts., Robson-Prichard Bldg.

Miscellaneous.

Ga., Macon-Home-Appleton Church Home Trustees plan to erect building.

Mo., Springfield-Fair-Joel T. Morris and others will incorporate Ozark Regional Fair Assn. with \$25,000 capital and erect buildings, improve race track, etc.

Mo., Troy-Fair-Lincoln County Fair Assn. 0. D. Bradley, Prest., plans to remodel amphitheater.

N. C., Charlotte - Clubhouse -Club plans to erect clubhouse on Hawthorne

Okla., Muskogee-Nursery-Kiwanis Club is interested in erection of day nursery; \$20,000; 2 stories and basement; brick and concrete; steam heat; Chas. W. Dawson,

Tex., Houston-Art Building-Houston Art League, Dr. Jos. Mullen Chrmn., Bd. of Trustees, will erect building of 4 units; construction on first unit to begin at once at cost of \$200,000; Greek architecture; Texas

Tex., Laredo-Immigration Building, etc. -Laredo Bridge Co., will erect immigration building, custom house, toll house for pedestrians and vehicle toll house at international bridge over Rio Grande River; bids opened Oct. 26; W. E. Simpson Co., Engr., 414 National Bank of Commerce Bldg., San

Va., Charlottesville-Clubhouse-Albemarle Golf .Club will erect building; \$15,000.

Club, Fredk. E. Nolting, Chrmn. Comm., will remodel and enlarge building; \$240,000; fred C. Bossom, Archt., 680 5th Ave., New York.

337 Huntington-Fair-Huntington Tri-State Fair Assn., Jos. N. Doyle and others, will erect exhibit buildings.

Schools.

Ala., Auburn-Alabama Polytechnic Institute, Dr. Spright Dowell, Prest., will erect 2 dormitories; Warren, Knight & Davis, Archts., Birmingham; bids within few days.

Ala., Sardis-School Board will erect \$18,-000 building; 6 class rooms and auditorium; cement blocks.

Ala., Sheffield-School Board will erect junior high school; 16 class rooms; brick and concrete; steam heat; enlarge auditorium in present high school; also erect school for negroes; B. B. Burnham, Archt., Birmingham.

Fla., Plant City-Special Tax School Dist. No. 9 will vote Nov. 25 on \$10,000 to erect building; J. E. Knight, Secy., Hillsborough County Board of Public Instruction, Tampa.

Fla., West Palm Beach-Palm Beach Couny Board of Public Instruction, Agnes Ballard, Supt., will erect building Special Tax School Dist. No. 1; bids opened Nov. 4; Manley King, Archt.

Ky., Smiths Grove-Warren County Board of Education, Bowling Green, will erect \$30,000 high school; 10 rooms; brick.

La., Baker—Leyland College will erect 6 buildings: \$125,000; 3 will be 1 story; frame; others, 2 stories; brick; bids about Nov. 1; Favrot & Livaudais, Archts., Hibernia Bank Bldg., New Orleans.

La., Baton Rouge-Louisiana State Univer sity, R. L. Himes, Secy., Bldg., Comm., will erect cottage, cattle barn and warehouse; bids opened Nov. 1; plans and specifications at office Theo. C. Link, Archt., Fourth floor of Capitol, Baton Rouge.

La., Shreveport-Caddo Parish School Bd. will erect addition to Queensborough School: also building at Crewell St. and Highland Ave.; \$175.000 each; 15 to 20 rooms; Edw. F. Neild, Archt., Merchants Bldg, (Lately noted to have voted \$1,000,000 bonds.)

Md., Baltimore-Board of Awards, Mayo Wm. F. Broening, Prest., will erect Gwynn's Falls Park High School, Hilton St. betwee Edmondson Ave. and Frederick Ave.; assembly room to accommodate 1500: 2 gymnasiums; academic, commercial and industrial courses; Smith & May, Archts., Calvert Bldg.

Miss., Brookhaven-Lincoln County School Board will consolidate Fair River, Harmony, Oak Grove, Big Springs and Beeson districts and erect brick school.

Mo., Kansas City-City Board of Education will erect Askew School, 27th St. and Topping Ave.; \$250,000; 1 story; 230x250 ft.; brick; terra cotta trim: 10 classrooms, auditorium. domestic science and manual training rooms; bids opened Nov. 2; Charles Smith, Archt. (Lately noted.)

Mo., Paynesville-Board of Education plans to erect \$25,000 high school; election soon on \$12,000 bonds.

N. C., Durham-Durham County, Board of Education will erect 8-room school in Lowes Grove school dist.; bids opened Nov. 6; Linthicum & Linthicum, Archts., Raleigh.

N. C., Durham-Durham County Board of Education, Jno. W. Carr, Jr., Supt., receives bids until Nov. 6 to erect East Durham School; plans and specifications at office Rose & Rose, Archts. (Lately noted.)

Okla., Luther-Board of Education, A. M. Va., Richmond-Clubhouse-Westmoreland | McClure, Clk., will erect gymnasium and audi-

torium; \$13,000; 1 story; 80x90 ft.; brick; bids opened Nov. 2; Hawk & Parr, Archts., Magnolia Bldg., Oklahoma City. (Lately noted.)

S. C., Mullins-School Board, E. T. Mc-Millan, Secy. will erect high school; \$38,000; 10 classrooms and auditorium; brick and frame; composition roof; wood floors; steam heat; electric lights; W. D. Harper, Archt., Florence. (Lately noted.)

Tenn., Memphis-City Board of Education will erect addition to Snowden School, McLean St. and N. Parkway; Prof. R. L. Jones, Supt. of Education.

Tex., Austin-University of Texas, Robt. E. Vinson, Prest., will erect \$20,000 residence to replace lately noted burned structure; also \$400,000 building for departments of botany and zoology.

Tex., Buena Vista-Chickasaw County Agricultural High School, Prof. Jere Winters, Supt., will rebuild power plant damaged by

Tex., Dallas-Board of Education will expend \$10,000 to remodel Columbia School, 633 S. Akard St.

Tex., Houston-City, O. F. Holcombe, Mayor, is considering election latter part of January on \$2,000,000 for schools.

Tex., Lodge-School District Trustees will expend \$22,000 for improvements.

Tex., San Antonio-Board of Education will erect fireproof junior high school; \$175,-000; Phelps & Dewees, Archts., Gunter Bldg.

Tex., Sweetwater-School Board will erect building to replace East Ward School lately noted damaged by fire; also erect additions to South and West Ward schools; election in Dec. on \$80,000 bonds. (Lately noted.)

Va., Buena Vista-City, J. M. Updike, Mayor, will erect \$60,000 high school; 80x140 ft.; 3 stories; 17 classrooms; brick; maple and rift pine floors; concrete foundations; tin roof; bids opened Oct. 30; Stanhope S. Johnson, Archt., People's Bank Bldg., Lynchburg. (Lately noted.)

Va., Petersburg-County School Board will erect \$20,000 building at Kenilworth.

Stores.

Ala., Center-S. J. Cobb & Co., will rebuild structures lately noted damaged by fire; \$10,000; 2 stories; brick; wood floors; brick foundation; ventilators; wire glass; metal roof; M. M. Kinsey, Archt.

Ala., Troy-Carroll Mercantile Co. will erect brick building for 3 stores.

D. C., Washington-J. W. Hunt & Co., will erect building on New York Ave. between 12th and 13th Sts.; Milburn, Heister & Co., Archts., Union Savings Bank Bldg.

D. C., Washington-Lansburgh & Bro. will erect addition to department store; \$200,000; 6 stories; Milburn, Heister & Co., Archts., Union Savings Bank Bldg.

Ga., Atlanta-A. P. Murphy will erect \$10,-000 store, 346 Edgewood Ave.; 1 story; brick.

Ga., Brunswick-A. J. Gordon will remodel 3-story department store, Newcastle and Gloucester Sts.

Ky., Catlettsburg-Ike Lefkowitch is reported to erect building on Main St.; 2 stories: brick.

Ky., Catlettsburg-J. M. York will erect 2story brick store on Main St.

La., Ponchatoula-Favrot & Livaudais, Hibernia Bank Bldg., New Orleans, prepared plans for Bradley Building; \$100,000; 2 stories; 80x200 ft.

Okla., Okmulgee-F. W. Woolworth Co. purchased Bank of Commerce Bldg. and will remodel for store.

Je

A

ro

WE

str

sio

Ble

tile

poo

etc

cia

to,

1

ton

mn

tor

500 Sav

Hyp

mas

stee

Pitt

gini

tion

\$93.

holle

terio

low

syst

Emp

Elec

Ba

struc

Bids

crete

ernm

mast

Bar

Hoop

barge

1st a

Tenn.

Bat

Md., Baltimore—Cleveland R. Bealmear, 501 Title Annex Bldg., will erect four 1-story brick store additions, 321-28 W. North Ave.; also 1-story brick garage in rear; total \$10,000.

Md., Bladensburg—J. Moses Edlavitch, Hyattsville, will remodel building for stores. (See Md. Hyattsville).

Md., Hyattsville—J. Moses Edlavitch will erect 2 stores; \$10,000; 1 story and basement; 20x46 ft.; also remodel building at Bladensburg for 5 stores; \$15,000; 1 story and basement; 30x46 ft.; brick; Geo. T. Santmyer, Archt., 1320 I St., N. W., Washington, D. C.

Miss., Vicksburg—Albert Bonelli plans to erect brick store, Washington and Jackson Sts.; 1 story and basement.

N. C., Asheville—Slayden Fakes & Co. will erect \$65,000 building at Biltmore.

N. C., Charlotte—T. T. Cole, Jr., Charlotte, and H. A. Påge, Aberdeen, will convert property on Elizabeth St. into stores; also remodel residence for apartments; widen and pave street 200 ft. long.

N. C., Durham-R. H. Wright will erect 2-story brick building on Main St.

Tenn., Memphis—L. L. Diehl will erect 3 stores on Overton Park Ave.; 65 ft. frontage; brick; mansard roof; plate glass front; Estes W. Mann, Archt.

Tex., Dallas—O. C. Kramer will erect \$10,000 store and apartment building, 407 N. Bishop Ave.; 2 stories; brick.

Tex., Dallas—T. P. Finnegan will erect 2story brick store and apartment building, 1511-13 S. Ervay St.; \$17,500.

Tex., Dallas-S. B. Perkins will not erect building on St. Paul St. as lately reported.

Tex., Dallas—Reese Millinery Co., J. S. Reese, Prest., will remodel building at 1614 Elm St.

Tex., Greenwood—J. P. Rudd will erect store to replace burned structure; concrete; 40x70 ft.; concrete floors and foundation; 1 story.

Tex., Paris-Dora Stephens will erect 2story brick business building on Bonham St.

Tex., Sweetwater—Chas. McFarland, Weatherford, will erect buildings to replace structures noted burned.

Tex., Winters-E. A. Jeanes & Co., will erect building; 50x100 ft.; brick.

W. Va., Charleston—Capital City Supply Co. will erect \$21,000 store on Wilson St. between Morris and Beauregard Sts.

W. Va., Princeton—Susong-Russell Hardware Co., will erect \$25,000 building; 42x130 ft.; 3 stories; brick.

Theaters.

La., New Orleans—B. F. Brennan & Bros., 115 University Pl., will erect theater, Lafayette Ave. and Marais St.; \$10,000; 56x13+ ft.; 1 story; steel and frame; bids opened Nov. 3; Montz & Maroney, Archts, Title Guarantee Bldg.

Warehouses

Ala., Oxford—Southern Mills Corp., A. H. Miller, Prest., will erect warehouse, install machinery, etc.; \$30,000.

Ky., Ashland—American Rolling Mill Co. will erect warehouse in West Ashland; 220x 100 ft.; brick and steel.

Md., Baltimore—E. T. Newell, 213 St. Paul St., will erect \$20,000 warehouse, 708 N. Howard St.; 3 stories; brick.

Bottoms, Contr., 1004 E. G St., Oklahoma

City and County.

Fla., Eustis—Library—Eustis Library Assn.; \$12,000 library; 2 stories; 45x60 ft.; hollow tile and stucco; built-up roof; Alan J. MacDonough, Archt., Eustis; C. Z. Osborne, Contr., Umatilla.

Md., Baltimore—Police Sub-Station—Board of Awards, Mayor Wm. F. Broening, Prest.; \$16,986 police sub-station, Belair Rd. near Belleview Ave.; 1 story; cement floors; concrete foundation; fireproof roof; O. Eugene Adams, Archt., Calvert Bidg.; Chas. L. Stockhausen Co., Contr., Gay and Water Sts.

W. Va., Morgantown—Jail—Monongalia County; \$130,000 jail; 108 cells; Sidney F. Heckert, Archt., Bessemer Bldg., Pittsburgh, Pa.; Cole Bros., Contrs., for masoury.

Dwellings.

Fla., Tampa—Rev. T. C. Taliferro; \$10,000 dwelling, 402 Platt St.; 2 stories; frame; slate roof; Francis J. Kennard, Archt.; B. F. Walker & Sons, Contrs. (Lately noted.)

La., New Orleans—Mrs. Welch; \$12.950 duplex, Sycamore and Dublin Sts.; Brehm & Coyla Contrs.

Md., Baltimore—Samuel Salzman, Equitable Bldg.; 2-story and attic brick dwelling, Carroll Rd. near Queen Anne Rd.; 40x26.10 ft.; slate roof; steam or hot water heat; \$10,-000; J. E. Moxley, Jr., Archt., 851 Equitable Bldg.; S. O. Street, Contr.

Md., Baltimore—Westphal & Schoenhals Park Bank Bldg.; 20 dwellings, 2800-38 Cottage Ave.; \$60,000; 15.5x55 ft.; 2 stories; brick; hot water heat; Jos. F. Hirt, Archt.-Contr., \$29 N. Luzerne Ave.

Mo., Jefferson City—Chris Langerhans; 3 dwellings, Broadway between McCarty and Miller Sts.; Thos. Heisler, Contr.

N. C., Wilmington—R. E. Williams, Box 1093; bungalow at 1514 Ann St.; 30x56 ft.; D. N. Murrell, Contr., Winter Park.

S. C., Inman—Inman Mills; 50 employes' bungalows; 4 rooms; brick foundations; composition shingle roof; plans by Jas. A. Chapman, Supt.; W. M. Moore, Contr.

Tenn., Memphis—Irwin Bensdorf; \$13,000 dwelling, 315 Parkview; 2 stories; brick veneer; heating plant \$1500; S. Malkin, Contr.

Tenn., Memphis.—J. A. Haley; 8 dwellings, 352-56-60-64-70-74-78 Avalon, and 1656 Vance Sts.; \$5000 each; heat, \$500 each; brick veneer; 6 rooms; H. R. Reynolds, Contr.

Tex., Dallas—Power Investment Co., O. A. Teal, Secy., care Murphy-Bolanz Co.; 8 cottages, 5200 block Terry St. and 6 cottages, 5200 block Ash Lane; \$2000 each; frame; 4 rooms; block foundations; "B" floors; shingle roofs; 1 story; A. S. Childers, Archt.-Contr., care Murphy-Bolanz Co.

W. Va., Nellis—American Rolling Mills, G. M. Verity, Prest., Middletown, O.; 40 dwelling for miners; 1 story; brick and tile; Simpson & Elswick, Contrs., Ashland, Ky. (See Mchy. Wanted—Building Material; Brick; Hollow Tile; Lumber; Laths; Plaster; Cement & Lime; Roofing.)

Government and State.

W. Va., Charles Town—Post Office—Treasury Dept., Jas. A. Wetmore, Act. Supervising Archt., Washington, D. C.; \$56,000 post office; 60x50 ft.; slate and slag roof; brick foundation; 1 story; interior tile; metal doors; vaults; concrete floors; steam heat, plumbing, wiring in general contract; E G. Heflin, Contr., 23 Law Bidg., Fredericksburg, Va. (See Mchy. Wanted—Building Material.)

BUILDING CONTRACTS AWARDED

Apartment Houses.

N. C., Charlotte—J. R. Marus, Vice-Prest. Atlantic Tile & Marble Co.; \$16,500 building, 909 W. Trade St.; 2 stories; 20 rooms; tile and brick; 4 apartments; Louis H. Asbury, Archt.; E. A. Moring, Contr.

W. Va., Caretta—Consolidated Coal Co., Inc., Coalwood; 19 buildings containing 30 tenements; plastered; Johns-Manville asbetos shingle roofs, copper-valleys and flashings; H. F. Giffin, Archt., Fairmont; R. L. Byrum's Sons Co., Contrs., Wheeling.

W. Va., Coalwood—Consolidated Coal Co., Inc.; 39 houses containing 50 tenements; plastered; Johns-Manville asbestos shingle roofs; copper valleys and flashings; H. F. Giffin, Archt.; J. M. Kisner & Bro. Lumber Co., Contr.; both Fairmont.

W. Va., Huntington—D. B. Gwinn; \$40,000 store and apartment building, 4th Ave. near 11th St.; brick; 40x88 ft.; 3 stories; wood and terrazzo floors; composition roof; concrete foundation; Meanor & Handloser, Archts.; V. E. Taylor, Contr.; King & Peterson, tile and marble work; heating and plumbing not let.

Association and Fraternal.

Va., Norfolk—Naval Y. M. C. A.; 2-story annex, Tazewell and Boush Sts.; brick; 5 stores on first floor; 60 sleeping rooms above; Nugent-Price Construction Corp., Contr., at \$34,827; plumbing and heating, \$8000.

Bank and Office.

D. C., Washington—Chamber of Commerce of United States, D. A. Skinner, Secy.; \$1.500,000 building; 158x149 ft.; 4 stories; Cass Gilbert, Archt., 244 Madison Ave.;

James Stewart & Co., Inc., Contrs., 30 Church St., both New York. (Full details lately noted, but name of contractor incorrect.)

Fla., Miami—Miami Exchange Bank, Marshall J. Noble, Prest., is reported to erect 10-story bank and office building, W. Flagler St.; McDonald Construction Co., Contr. New York.

Fla., Orlando—State Bank of Orlando & Trust Co., L. L. Payne, Chrma., Bldg. Comm.; 10-story bank and office building; \$350,000 complete; 60x90 ft.; steel frame or reinforced concrete; built-up roof; concrete floors; ornamental terra cotta; safes; vaults; wire glass; mail chutes; vault lights; ventilators; steam heat; electric lights; 2 passenger elevators; W. L. Stoddart, Arch., 9 E. 40th St., New York; A. Bentley & Sons Co., Contrs., Jacksonville; mechanical contract not let. (Lately noted.)

Okla., Oklahoma City—American National Bank will erect 5-story addition to 3-story eastern section of building, Main and Robinson Sts.; elevators; will also remodel 8-story section; Stoddard Engineering Co., Contr.

Churches.

Va., Richmond—Grove Avenue Presbyterian Church, Rev. Jno. M. Alexander, Pastor, 421 N. Boulevard; Sunday school building, Grove Ave. and Roseneath Rd.; Baskerville & Lambert, Archt., Travellers Bldg.; J. C. Beazeley Co., Contr., 201 E. Canal St.

Okla., Perry—St. Rose of Lima Church; \$50,000 building; 50x123 ft.; brick and Bedford stone; concrete foundation; steel truss and tile roof; H. W. Brinkman, Archt., 701 Commercial St., Emporia, Kans.; Paschal

Hospitals, Sanitariums, Etc.

Miss., Clarksdale—Hospital Comm., A. J. Simmons, Chrmn.; \$32,490 hospital; Chas. O. Pfell, Archt.; Estes, Williams & Ragsdale, Contrs.; both Memphis; Dawkins Electric Co., electrical work; W. H. Harris, Clarksdale, plumbing; heating not let.

Hotels.

Mo., Kansas City—Council of Women's Clubs; \$75.000 annex to Girl's Hotel, 1805 Jefferson St.; 3 stories and basement; 128x 38 ft.; brick; wood floors; stone foundation; tar and gravel roof; steam heat; electric lights; Keene & Simpson, Archts.; Fogel Constr. Co., Contr., Reliance Bidg.

Tenn., Memphis—Tri-State Hotel Co., Jno. T. Walsh, Prest.; \$1,500,000 hotel, Main and Adams Sts.; 15 stories; 102x150 ft.; 358 rooms with bath, shower and running ice water; reinforced concrete and brick; stone trim; Jones & Furbringer, Memphis, and Barnett, Haynes & Barnett, Century Bidg., St. Louis, Asso. Archts.; James Alexander Construction Co., Contr., Memphis.

Miscellaneous.

D. C., Washington—Clubhouse—Congressional Country Club, G. Logan Payne, Chrmn.
Bidg, Comm.; \$1,000,000 building on Potomac River; Italian style; stone and marble; tile roof; 100 guest rooms, indoor swimming pool; grill room. bowling alleys, gymnasium, etc.; Philip M. Julien, Archt., New Commercial Bank Bidg., Washington; Michael Seretto, Contr., 3 Tremont Row, Boston.

D. C., Washington—Auditorium—Washington Auditorium Corp., Robt. N. Harper, Chr. M., Bldg. Comm., 401 Star Bldg.; auditorium; 19th St. between E St. and New York Ave., N. W.; 1,800,000 cu. ft.; seat 5000; Milburn, Heister & Co., Archts., Union Savings Bank Bldg., Washington; Parsons & Hyman, Washington, contrs. at \$451,700 for masonry and superstructure; Lehigh Steel Co., Allentown, Pa., contr. at \$104,000 for steel and erection to Jno. McDonald, \$30,000.

W. Va., Martinsburg—Boarding House— Pittsburgh Limestone Co., L. W. Strayer, Newcastle, Pa.; 2-story building at Nessle quarries; 28x46 ft.; M. L. Compton, Contr., Virginia Ave., Martinsburg.

Schools.

Ala., Birmingham—City Board of Education; \$83,000 building for Norwood School; \$93,600 addition to North Birmingham School; 2 stories and basement; 40x200 ft.; brick, hollow tile and reinforced concrete; concrete foors and foundations; built-up roofs; interior tile; metal doors; vaults; ventilators: low pressure steam heat; clock and signal systems; Warren, Knight & Davis, Archts.. Empire Bidg.; Day & Sachs, Contrs.; Knight Hardware & Electric Co., electric wiring for Norwood School; G. and P. Plumbing & Electrical Co., electric wiring for North Bir-

mingham School; Plumbing Service Co., heating and plumbing in both buildings, \$31,325.

Fla., New Smyrna—Volusia County Board of Public Instruction, DeLand; \$20,381 addition to school; 2 stories; 36x98 ft.; brick; Mark & Sheftall, Archts., Jacksonville; R. Knight, Contr., DeLand; Daytona Electric Co., Daytona; electric lights; DeLand Plumping Co., plumbing.

Ga., Atlanta—Board of Education, J. N. Landers, City Pur. Agt.; Formwalt School; \$200,000; 2 and 3 stories; 60x370 ft.; holoureret floors; probably Barrett roof; metal doors; ventilators; steel sash and trim; DeFord Smith, Archt., Grant Bldg.; Spiker & Lose, Engrs., Forsyth Bldg.; Griffin-Hodges Constr. Co., Contr., Candler Bldg.

Ky., Louisville—Board of Education, Henry B. Manley, Secy.; John M. Atherton Girls' High School, Morton Ave. nr. Rubel Ave.; \$326,245; Tudor Gothic style; 3 stories and basement; brick; terra cotta trim; gymnasium, 50x80 ft.; Joseph & Joseph, Archts.; C. A. Koerner & Co., Contr.

La., Oberlin—Allen Parish School Board; \$86,150 high school; 118x168 ft.; 3 storles with 2-story wing; brick; auditorium to seat 1300; I. C. Carter, Archt., Lake Charles; Jno. J. Hudson, Contr., Oakdale.

Mo., Brookfield—Board of Education, District No. 2, B. E. Runyan, Seey., R. F. D. 5; \$12.000 building; 2 stories and basement; 40x68 ft.; 6 rooms and auditorium; stucco and frame; wood and concrete floors; concrete foundation; shingle roof; steam heat; W. H. Gwin, Contr., South Gifford.

N. C., Greensboro—City Board of Education, J. Norman Willis, Chrmn., will erect schools on W. Lee St. and Asheboro St.; Starrett & Van Vleck, Archts., 8 W. 40th St.; New York; A. C. Wirth, Greensboro, Asso. Archt. for W. Lee St. School; Harry J. Simmonds, Greensboro, Archt. for Asheboro Street School; Hunt & Saddler, Greensboro, contrs. at \$174.289 for West Lee St. School; Joe W. Stout & Co., Greensboro, \$152,833 for Asheboro St. School; W. Drummond Marrow, Norfolk, Va., electrical work for both schools at \$14,000; W. W. W. Dick, Greensboro, heating for both structures, \$42,325.

S, C., Anderson—School Trustees, District No. 17, W. P. Wright, Secy.; Glenn Street School, 9-room addition; \$18,700; Townsend Lumber Co., Contr., Anderson; North Fant Street School, 8-room addition and remodel present building; Mitchell-Cox Lumber Co., Contr., Belton; Southside School; \$17,000, 6-room addition and remodel; C. M. Guest & Son, Contrs., Anderson.

S. C., Anderson—School Trustees, Dist. No. 17, W. P. Wright, Secy. will erect boys' high school, S. McDuffle and Broyles Sts.; 179x70 ft.; 10 rooms and auditorium; ordinary construction; asphalt built-up roof; rift pine and maple floors; steam vacuum vapor heat; electric lights; Casey & Fant, Archts., 112

N. Main St., Anderson; Batson Cook Co.,

West Point, Ga., contr. at \$84,000. W. Va., Fort Gay—Butler Dist. Board of Education, J. B. Thompson, Secy.; 7-room school; 57x78 ft.; 2 stories and basement; brick and concrete; wood floors; concrete foundation; composition roof; Jno. R. Gleske, Archt., 5 Foster Bldg., Huntington; Jas. A. Hughes, Contr., Huntington.

Stores.

Fla., Miami—Geo. C. Stembler; 3-story store and apartment building, Flagler St. and 12th Ave.; \$35,000; concrete and stucco; Hunt Bros., Contrs.

Fla., Miami Beach—Mr. and Mrs. J. N. Ramey; \$10,000 store and apartment building on 23rd St.; 2 stories; cement block and stucco; plate glass store front; Geo. W. Dickens, Contr.; plans by Mrs. Ramey.

Fia., West Palm Beach—W. A. Weihl; \$10,000 building; 2 stories; 40x63 ft.; reinforced concrete and hollow fireproof tile; wood floors; reinforced concrete foundation; concrete roof; W. B. Blanford, Contr., 1000 N. Olive St.

Ga., Atlanta—T. Smith, Colquitt. Ave.; \$18,000 building for 5 stores; 1 story; 100x 65 ft.; hollow fireproof and interior tile; terrazzo floors; concrete roundation; tar and gravel roof; steel sash and trim; ornamental terra cotta; Daniell & Beautall. Archts., Peters Bldg.; C. E. Miller, Contr., Atlanta Trust Bldg.

La., Morgan City—Mrs. Leon Kahn; \$12,-000 store to replace burned structure; 1 story; brick; G. Ghinardi, Contr.

Tex., Galveston—J. Block & Co.; expend \$10,000 to remodel building; M. C. Bowden, Contr.

Tex., San Antonio—N. N. Basila; 6 stores, Main Ave. and Locust St.; 1 story; concrete foundation; brick and concrete; plate glass fronts; concrete floors; composition built up roof; city lights; W. N. Hagy, Archt.-Contr., 627 Gunter Bldg.

Warehouses.

Tex., Dallas—Dallas Terminal Warehouse Co., A. C. Rick, Prest.; \$121,000 warehouse in 2600 block of Elm St.; 2 stories; 175x175 ft.; fireproof; Bertram C. Hill, Archt.; Lange & Trumpf, Contrs.

Tex., Waco—R. R. Albaugh; \$90,000 warehouse; 50x100 ft.; 4 stories; reinforced concrete; Moores & Dunford, Engrs., 180 N. Dearborn, St., Chicago; J. E. Johnson Constr. Co., Contr., Waco; Reliance Elevator Co., Chicago, elevators.

W. Va., Kenova—Tri-State Grocery Co.; \$40,000 warehouse; 75x100 ft.; 3 stories; wood floors; concrete foundation; composition roof; Meanor & Handloser, Archts.; V. E. Taylor, Contr., both Huntington. (Lately noted under Stores.)

MACHINERY, PROPOSALS AND SUPPLIES WANTED

Backfilling, etc.—Contracting Officer, Construction Service, Compartment C, Quartermaster Intermediate Depot, Norfolk, Va.—Bids until Nov. 6 for placing fill under concrete aprons and behind sheet pilling in Government pier 2 and quay walls at Quartermaster Intermediate Depot.

Barge and Tug Boat Building Material.— Hoppes & Hundley, Rallway Dept., Denbigh, Ya.—Prices on material to build two 60 ft. barges and one 50 ft. tug boat.

Barges (Steel).—Mississippi River Comsn., let and 2nd Dists., Customhouse, Memphis, Tenn.—Bids until Dec. 2 to furnish six steel

barges; further information on application.

Bars (Plain Round).—Port Commrs., Suite
200, New Orleans Court Bidg., New Orleans,

200, New Orleans Court Bidg., New Orleans, La.—Bids opened Nov. 2 to furnish 15,000 plain round bars for concrete reinforcing in various diameters and lengths; specifications on file at office of Suprvs. of Purchases, 1 Canal St.

Blow Gin.—Greenville Mattress Mfg. Co., O. B. Van Wyck, Prest., Greensville, S. C. —Blow gin for plant with daily capacity 100 mattresses.

..Boat.-H. E. Barlow, Secy., Chamber of Commerce, New Bern, N. C.-Second-hand boat, 125 ft. long, 23 ft. beam, 7 ft. hold, equipped with Deisel engines, to draw about 9 ft. loaded; state price, condition and full particulars, etc.

Boiler.—Louisiana Sand & Gravel Co., T E. Stephenson, Prest., Monroe, La.—To purchase 200 H. P. Scotch Marine boiler; to be used on dredge boat.

Boilers .- See Flourspar Mill Equipment.

Boiler.—J. L. Barr, Consit. Engr., 224 St. Paul St., Baltimore, Md.—Prices on 30 H. P. economic type boiler.

Bollers .- Mississippi River Comsn., 1st and

2nd Dists., Customhouse, Memphis, Tenn.— Bids until Dec. 2 to furnish bollers for hydraulic grader No. H. G. 2-1-1-2-23; further information on application.

Boiler.-See Generator Set, etc.

Boiler (Marine Type).—White Oak Corporation, Knoxville, Tenn.—300 to 500 H. P. marine type boiler.

Boiler Plant Equipment.—Bureau of Yards and Docks, R. E. Bakenhus, Act. Ch., Navy Dept., Washington, D. C.—Bids until Nov. 15 for mechanical equipment piping and outside steam distributing systems, consisting of brick settings on concrete foundations for 5 water tube boilers, side-feed mechanical stokers with extension furnaces smoke flue, feed water heater, etc. at U. S. Veterans Hospital at Tupper Lake, N. Y.; information on application. (Specifications 4719.)

Bolts (Wear-Resisting or Self-Lubricating).—Rodriquez Spring Wheel Co., 602-3rd St., Baton Rouge, La.—Prices on wear-resisting or self-lubricating or graphited bolts.

Boring Machine.—G. W. Morse & Sons, Forest Hill, Md.—Prices and data on augers or boring machine to bore holes through porch columns; correspond with mfrs.

Brick.—Simpson & Elswick, Ashland, Ky.
—See Building Material.

Bricks.-See Building Materials.

Brick Plant Equipment.—Oscar L. McLurd, 3 Technical Bidg., Asheville, N. C.—To purchase good second-hand equipment for small brick plant.

Brick Stack.—Bureau of Yards and Docks, R. E. Bakenhus, Act. Ch., Navy Dept., Washington, D. C.—Bids until Nov. 15 for radial brick stack on concrete foundations at U. S. Veterans Hospital at Tupper Lake, N. Y.; information on application. (Specification 4722.)

Bridge Construction.—Louisiana Highway Comsn., Raymond Bldg., Baton Rouge, La.— Bids until Nov. 9 to construct 100-ft. steel span bridge on Ruston-Arkansas Highway; Lincoln Parish, Project No. 333; plans, etc., from J. M. Fourmy, State Highway Engr.

Bridge Construction.—Palm Beach County, A. J. Bell, Supvr., West Palm Beach, Fla.— Bids until Nov. 6 for bridge over Downs Creek, between Ware Shoals and Shoals Junction; plans, etc. on file.

Bridge Construction.—Adams County, Bd. of Supvrs., Henry B. Vaughan, Prest., Natchez, Miss.—Bids until Nov. 6 for following: bridges:

Concrete and iron on Foster and Henderson road, second bridge.

Church and Foster's Mound road; County to furnish material; plans, etc. from Frank V. Eisele, Clk.

Bridge Construction.—State Highway Dept., Nashville, Tenn.—Bids until Nov. 10 for following bridges on road between Newport and North Carolina State line; Cocke County, Federal Aid Project No. 23:

Sta. 565 plus 57.5; two 20-ft. spans. Sta. 799 plus 10, three 18-ft. spans; plans etc., from D. Q. McComb, Ch. Engr., State Highway Dept.

Bridge Construction.—Travis County, Geo. D. Mathews, County Judge, Austin, Tex.—Bids opened Oct. 31 for steel span bridge over Little Walnut Creek, on Manor road; 83,270 lbs. structural steel; 260.83 cu. yds. Class A and B. concrete; 18,902 lbs. reinforcing steel; O. Leonard. County Engr.

Bridge Repairing.—City, D. S. Jones, Pur. Agt., Macon, Ga.—Bids until Nov. 14 to repair, etc., Spring St. and Fifth St. bridges; plans, etc., from City Engr.

Building Material.—Simpson & Elswick,

Ashland, Ky.—Building material, including 400,000 common red hard burnt brick; 80,000, 4x5x12 hollow tile; 110,000 ft. bill lumber; 40,000 ft. No. 1 common pine flooring; 500,000 ft. No. 2, %x6 D&M pine roofers; 35,000 ft. % random width No. 3 or better pine boards for sub-flooring; 100,000 laths; 70 tons plaster; 200 bbls. Portland cement; 400 bbls. lime; 400 sqs. roofing.

Building Material—E. G. Hebin, 23 Law Bldg., Fredericksburg, Va.—Building material for \$56,000 postoffice building at Charleston, W. Va.

Building Material.—Wm. Lee Popham, Apalachicola, Fla.—Building Material.

Building Materials.—Richmond Housing Co., Box 131, Richmond, Va.—To correspond with mfrs, of following building materials; Metal and creo dip shingles, heating and plumbing fixtures; all kinds flooring; lumber; pipeless furnaces for small homes; contemplate building about 50 to 75 small modern homes.

Building Materials.—Electrical Constructors Co., 26 W. 5th St., Charlotte, N. C.— To purchase brick, cement and other building materials for work at Taylorsville and Newton, N. C.

Cabinet (Blue Print).—Joseph Stoltz & Son, Inc., Commerce Ave. & Highbridge Station, New York.—Blue print cabinet; submit cuts and descriptive matter.

Cars (Cafe, Observation). — Pennsylvania Equipment Co. (Mchy. Dealers) Norwood, Pa.—To purchase two cafe-observation cars.

Cars (Steel, Freight).—E. H. Wilson & Co., Commercial Trust Bldg., Philadelphia, Pa.— All steel or steel underframe freight cars of not less than 40 ton capacity.

Castings (Rim and Hub).—Rodriquez Spring Wheel Co., 602-3rd St., Baton Rouge, La.—Prices on rim and hub castings used in mfre. of automobile spring wheels.

Cement.—See Building Materials.

Cement and Lime.—Simpson & Elswick, Ashland, Ky.—See Building Material.

Clocking Machines.—Gaffney Knitting Mill, W. E. Peeler, Mgr., Gaffney, S. C.—In market for used Singer clocking machines.

Concrete Mixers.—Wm. Lee Popham, Apalachicola, Fla.—Concrete mixers.

Crane (Electrically Operated).—D. C. Elphinstone (Mchy. Dealers) 408 Continental Bldg., Baltimore, Md.—One electrically operated crane, 75 ft. boom, capable of handling 2-yd. clamshell on 60 ft. radius; for permanent location, handling sand and gravel; state condition, specifications, etc.

Crushers.—See Flourspar Mill Equipment. Cutter (Automatic Gear).—Battey Machinery Co., Rome, Ga.—To purchase good second-hand automatic gear cutter.

Drainage.—Hope Drainage Dist., Board of Supygs., Pattonsburg, Mo.—Bids opened Nov. 9 to construct following ditches in Davies County:

Grand Creek, 1,077,300 cu. yds. excavation. Big Creek, 170,000 cu. yds. excavation. Sampson Creek, 140,000 cu. yds. excavation.

Cypress Creek, 92,500 cu. yds. excavation. Grindstone Creek, 42,700 cu. yds. excavation; clearing portions of old channels, 27½ mi.; specifications on file at offices of Dean H. Leopard, Board Secy., Gallatin, Mo. and George W. Lockridge, Chief Engr., Pattonsburg.

Drainage.—Tensas Bayou Drainage Dist., Comrs., J. Martain Hamley, Seey., Lake Providence, La.—Bids until Nov. 15 for excavation of 3 lateral canals, approx. contracts 350,000 cu. yds.; plans with J. R. Adams, Engr.

Dredging .- U. S. Engr. Office, Jackson-

ville, Fla.—Bids until Nov. 27 for dredging in Key West Harbor; further information on application.

Electric Plant.—Spinks Ice & Mfg. Co., T. M. Spinks, Mgr., Shubuta, Miss.—Catalogs and estimates from manufacturers and dealers on electric plant in connection with company's hydro plant, to consist of direct current generator of about 25 K.W. storage battery, and rotary converter, 110 to 2300 volts, with charging panels and switchboard.

Dredging.—U. S. Engr. Office, Charleston, S. C.—Bids until Nov. 25 for dredging western channel and Samplt river, Winyam Bay, S. C.; further information on application.

Drum (Vertical).—See Refinery Equipment.

Electric Lights.—City of Groveland, Fla., Chas. J. Anderson, Chrmn. of Streets and Sanitation.—Data and prices on installation of electric lights.

Electric Wiring and Fixtures.—Geo. Schnader 115 N. Chester St., Baltimore, Md.—Bids on electric wiring and fixtures for 15 cottages.

Elevators.—Gonzales Cement Works, Gonzales, Texas—Prices on material elevators.

Engine.—Hoopes & Hundley, Railway Dept. Denbigh, Va.—Installation data, prices, and full particulars on 60 H. P. heavy fuel oil engine for use in a 50 ft. tug boat.

Engines (Oil and Steam).—J. L. Bart, Consit. Engr., 224 St. Paul St., Baltimore, Md.—Prices on 25, 37½, 50 and 100 H. P. oil engines, also 15 H. P. second-hand steam engine.

Engines (Oil).—Gonzales Cement Works, Gonzales, Texas—Prices on crude oil engines.

Engine.—Pennsylvania Equipment Co. (Mchy. Dealers) Norwood, Pa.—To purchase second-hand Mogul engine, small drivers, short wheel base, weight about 65 tons.

Engines.—Louisiana Sand & Gravet Co., T. E. Stephenson. Prest., Monroe, La.—To purchase 16x16 cylinder, center crank, high speed engine; to be used on dredging boat.

Engines.—See Flourspar Mill Equipment.
Engine (Steam, Swinging).—H. Eberman Light Plant, Morgantown, Ky.—Second-hand 4 ft. by 5 in. double cylinder, double drum, steam swinging engine; Lidgerwood preferred.

Excelsior Making Machinery.—Hollis & Co., 311 E. Markham St., Little Rock, Ark.—To correspond with mfrs. of excelsior making mehy.; also data on equipment, including balers, machines for placing excelsior in paper bags ready for packing furniture, etc.; product for Atlantic coast trade.

Fans (Exhause).—Ashbrook Veneer Co., Lumberton, Miss—Three 6 ft. exhaust fans for veneer kiln.

Flooring, etc.—See Building Materials.

Flourspar Mill Equipment.—Ohlo-Kentucky Flourspar & Lead Corp., Paducah, Ky.— To purchase boilers, engines, jigs, crushers, rolls and other necessary mehy. for erection of flourspar mill of 100 ton daily capacity.

Furnaces (Pipeless.)—See Building Materials.

Furnaces.—Geo. Schnader, 115 N. Chester St., Baltimore, Md.—Bids on furnaces for 15 cottages.

Garnett Machines. — Greenville Mattress Mfg. Co., O. B. Van Wyck, Prest., Greenville, S. C.—One second-hand, two cycle, garnett machine and one new one for plant with daily capacity of 100 mattresses.

Gas Pipe Line.—City of Corpus Christi Tex., Jno. T. Bartlett, Secy.—Bids opened Nov. 3 for repair and completion of gas pipe line from Saxtet well to City limits.

1-

d

n

n.

ha

nil

am

kn.

n-

Co.

PS,

CO.,

To

igh

oat.

ent.

red.

ak-

lud-

sior

nre.

fans

ICKY

hers.

erec-

ca-

fate-

ester

or 15

tress

cycle,

plant

hristi

pened

its

gas

å

Generator Set, etc.—Duncan Machinery Co. (Mchy. Dealers) Box 265, Knoxville, Tenn.—Lowest dealer prices on following equipment, quotations on part or all: One G. E. or Westinghouse direct connected generator with Ball or Skinner compound engine, engine not less than 150 H. P., capacity of generator not less than 200 H. P., 150 to 200 H. P. boiler with stack, front and all connections, guaranteed steam pressure not less than 150 lbs., to operate above plant; following motors to be driven by the above generator one 50 H. P., two 25 H. P., two 20 H. P., one 15 H. P., one 10 H. P. and five 3 H P. motors.

Handling System. — Gonzales Cement Works, Gonzales, Texas—Prices on product handling system.

Heating Plants.—Geo. Schnader, 115 N. Chester St., Baltimore, Md.—Bids on steam heating plants for 15 cottages.

Heating Plant.—Morristown Normal and Industrial College, Dr. Judson S. Hill, Prest., Morristown, Tenn.—Central heating plant, including radiators, boilers, etc., for dormitories.

Heating and Plumbing Fixtures.—See Building Materials.

Hog.—Duncan Machinery Co., (Mchy. Dealers) Box 265, Knoxville, Tenn.—Lowest dealers prices on one 10 or 12-in. hog.

Hollow Tile.—Simpson & Elswick, Ashland, Ky.—See Building Material.

Hose (Fire).—P. F. McDonald, Commr. of Finance, Municipal Bldg., Johnson City, Tenn.—Bids until Nov. 15 to furnish 1000 ft. standard fire hose.

Hydraulic Grader, Machinery.—Mississippi River Comsn., 1st and 2nd Dists., Customhouse, Memphis, Tenn.—Bids until Dec. 2 to furnish turbines, pumps, feed water heater, boiler-feed pumps, and electric light plant; further information on application.

Ice Plant.—City of Groveland, Fla., Chas. J. Anderson, Chrmn. of Streets and Sanitation.—Prices and data on installation of ice plant.

Jigs, etc.—See Flourspar Mill Equipment. Lathe and Press.—Carl W. Berlett, 5729 Charlotte street, Kansas City, Mo.—To purchase power drill press and lathe.

Lathes.—Simpson & Elswick, Ashland, Ky.—See Building Material.

Laundry (Steam) Equipment.—Beaufort Gazette, W. S. Britton, Mgr., Beaufort, S. C.—To correspond with mfrs. of steam laundry equipment.

Levee.—Office of Secy, Mississippi River Comsn., 1311 International Life Bldg., St. Louis, Mo.—Blds until Nov. 23 for constructing about 380,000 cu. yds. of earthwork in Kiugs Lake Drainage District; information on application.

Lighting Fixtures.—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C.—Bids until Nov. 1 to furnish and install lighting fixtures in U. S. Veterans' Hospital at Oteen, N. C.; drawings and specifications from office Supvg. Archt.

Lighting Fixtures.—Treasury Dept. Supvg. Archt.'s Office, Washington, D. C.—Bids until Nov. 10 to furpish and install lighting fixtures in U. S. Veterans Hospital, Norfolk, Vs., Tanner's Creek site, main hospital, east wing; plans on file.

Lumber.—Simpson & Elswick, Ashland, Ky.—See Building Material,

Lumber.—Virginia Building Material Co., 527 E. Main St., Richmond, Va.—To purchase about 100 pieces of 5x14x14-ft. square edge and sound, preferably all heart or eighty-five per cent heart pine; also one or two cars of 1x6-in. and wider sheathing.

Lumber (White Oak).—M. K. Frank, Frick Bldg., Pittsburgh, Pa.—To purchase white oak lumber in carload lots for the manufacture of mine cars, dimensions are: 1½x2-in. thick, 8x10-in. wide and 12-14-ft. long.

Miscellaneous Supplies.—Norfolk & Western Ry. Co., J. H. Clemmitt, Pur. Agt., Room 351 N. & W. Ry. Co. Office Bldg., Roanoke, Va.—Blds opened Nov. 1 for 50,000 tie dating nails, Contract AA-213; approx. 1,400,000 tie dating nails, Contract AA-214; 300 steel car axies, Contract AA-216; 500 ft. of wire rope, Contract AA-217; information on application.

Miscellaneous Supplies. — J. C. Donnelly, Treas., Mountain Branch, N. H. D. V. S. National Sanatorium, Tenn.—Invite bids for furnishing and delivering supplies according to specifications; open Nov. 13 for subsistence and household supplies; Nov. 20 for hospital supplies and Nov. 27 for farm supplies.

Motors .- See Generator set, etc.

Motors (Electric). — Gonzales Cement Works, Gonzales, Texas—Prices on electric motors

Motor, Etc.—Georgia Talc Co., Asheville, N. C.—Used or second-hand 50 H. P., motor single phase, 6 cycle, 2300 or 2200/220/110 volt or 2300 or 2200 volt primary, 440 volt secondary single phase, 60 cycle, 42-25 K V A transformers for same.

Oil Engines.—O. L. Wright, Maysville, Mo.—Prices on 3 oil engines for electric light plant.

Paving.—City, Board of Commrs. of Street Improvement Dist. No. 00, U. S. Pitney, Chrmn., Hot Springs, Ark.—Bids until Nov. 15 to pave Central Ave. from Grand Ave. to Watt St.; 9020 sq. yds. concrete paving; 5240 lin. ft. concrete gutter; plans, etc. from G. C. Smith, Dist. Engr.

Paving.—City, R. C. Cantwell, Commr. of Public Works, Wilmington, N. C.—Bids until Nov. 23 for 75,000 sq. yds. hard surfaced street paving; plans, etc., from Carolina Engineering Co., 412 Southern Bldg., Wilmington, N. C.

Paving.—J. S. Looney, City Mgr., Decatur, Ga.—Bids until Nov. 3 for paving, laying curb and gutter on 3rd Ave.; 3260 sq. yds. 6-in. slag macadam base; 3300 sq. yds. 2-in. asphaltic concrete wearing surface; 96 lin. ft. circular and 1975 lin. ft. straight, 5x18-in. granite curb; 360 lin. ft. 5x12-in. straight granite curb; 350 sq. yds. cement grouted, granite rubble gutter; plans, etc., on file. B. F. Williams, City, Engr.

Paving.—City, F. E. Ross, Engr., Jefferson City, Mo.—Bids until Nov. 6 for paving St. Mary's Blvd., between Bolivar and Delaware Sts.; 900 gals. bituminous material; 30 cu. yds. crushed stone; plans, etc., on file.

Paving.—A. R. Hunt, City Clk., Huntington, W. Va.—Bids until Nov. 6 to grade, pave and curb, 5th Ave. from 13th to 16th Sts.

Picker Machine.—Greenville Mattress Mfg. Co., O. B. Van Wyck, Prest., Greenville, S. C. —Picker machine for plant with daily capacity of 100 mattresses.

Pipe (Terra Cotta).—Baltimore Construction and Supply Co., 610 N. Calvert St., Baltimore, Md.—To purchase 14-in. terra cotta pipe in Aberdeen or Fayetteville, North Carolina.

Piping, etc.—Port Commrs., Room 200 New Orleans Court Bldg., New Orleans, La.— Bids until Nov. 9 to furnish and erect piping fittings and fixtures for fire protection system for Eight-Harmony St. shed; specifications with Supvr. of Purchases, 1 Canal St.

Plaster.—Simpson & Elswick, Ashland. Ky.
—See Building Material.

Plastering.—Geo. Schnader, 115 N. Chester St., Baltimore, Md.—Bids on plastering for 15 cottages.

Plumbing.—Geo, Schnader, 115 N. Chester St., Baltimore, Md.—Bids on plumbing for 15 cottages.

Plumbing.—Morristown Normal and Industrial College, Dr. Judson S. Hill, Prest., Morristown, Tenn., plumbing, including bath room and lavatory fixtures for dormitories.

Presses (Printing).—The Globe, Wellsville, Kan.—To purchase two job printing presses with power attachment.

Pulverizer.—Georgia Talc Co., Asheville, N. C.—To purchase used or second-hand pulverizer, Raymond Brothers preferred.

Refinery Equipment .- Lion Oil & Refining Co., V. H. Smith, V.-P., Kansas City, Mo.— Bids until Nov. 1 on following equipment: Two 50x30 steel 10,000 bbl., one 50x30 steel 15,000 bbl. storage tanks; two 2500 bbl. and four 2000 bbl. run down tanks, umbrella roof; six 1000 bbl. fire and steam stills to have 1/2-in. bottoms, full sheet and %-in, crown sheets and 1-in, heads with regular outlets, openings and connections: one 3x40 vertical drum with two openings and flanges; delivery to Eldorado, Ark, refinery; later will ask bids on 10 or 12 Burton type stills, 8x40, having 1-in. crown sheets, 14-in. heads and %-in. onepiec ebottoms, together with all extra heavy pressure valves, fittings, etc.; tanks must be erected complete, stills may be quoted f. o. b. cars refinery.

Refrigerating Equipment.—Bureau of Yards and Docks, R. E. Bakenhus, Act. Ch., Navy Dept., Washington, D. C.—Bids until Nov. 15 for refrigerating and ice making equipment, consisting of 2 motor driven compressors, condensers, liquid receiver, 2 motor driven brine pumps, combination freezing and brine cooling tank with expnnsion coils, etc.; and for cold storage rooms with insulation for 8 compartments including doors, floors and equipment for storage and handling goods in subsistance building at U. S. Veterans Hospital at Tupper Lake, N. Y.; information on application. (Specifications 4720.)

Refrigeration Plants (Automatic).—D. W. Sykes, Smithfield, Va.—To correspond with mfrs. of artificial on automatic refrigeration plants for small slaughtering and packing plant.

Road and Bridge Construction.—Louisiana Highway Comsn., Raymond Bidg., Baton Rouge, La.—Bids until Nov. 9 for Natchitoches-Colfax Highway, Natchitoches Parish; also foundation for abutment at Grand Ecore Bridge; plans, etc., from J. M. Fourmy, State Highway Engr.

Road Construction.—New Hanover County Commrs. W. H. Walker, Clk., Wilmington, N. C.—Bids until Nov. 6 for 5 mi. sand-clay road on Mill Creek Highway north of Moores Creek; plans, etc. on file.

Road Construction.—Palm Beach County Commrs., Hector Harris, Chrmn., West Palm Beach, Fla.—Bids until Nov. 10 for following:

10-ft. shell Ocean Blvd. on Jupiter Island, through Bon Air Beach.

Hard-surface road along south bank of St. Lucie Canal from Jupiter-Indiantown road to Lake Okeechobee; 61,000 ft.; also construct timber trestles.

50-ft. right-of-way along south bank of St. Lucie Canal, from Jupiter-Indiantown road, westward; 49,000 ft.

Hard-surfaced road from Okeelanta to Gladecrest; plans, etc. from County Engr. Road Construction.—State Highway Dept., Tallahassee, Fla.—Bids until Nov. 14 for 11.6 mi. Road No. 1, between Lake City and

Welborn; Columbia and Suwanee Counties; 2½-in. penetration macadam on 6-in. rock base; 6-8-6-in. plain concrete surface; 2-in. bituminous concrete; plans, etc. from Div. Engr; Wm. B. Cocke, State Highway Engr.

Road Construction.—Angelina County Commissioners Court, John F. Robinson, County Judge, Lufkin, Tex.—Bids about Nov. 14 for 13.54 ml. State Highway No. 7, Sec. B.; 28, 332 cu. yds. gravel surfacing, to be furnished by County; 107,340 lbs. reinforcing steel; G. R. Abney, County Engr. (Lately noted.)

Road Construction.—Bowle County, O. B. Pirkey, County Judge, New Boston, Tex.—Bids opened Oct. 30 for 16 mi. gravel surfaced road on State Highway No. 1; plans, etc. from County Clk., J. V. Curnutte, County Engr., Simms, Tex. and State Highway Dept., Austin, Tex.

Road Construction.—Henderson County Board of Road Trustees, W. P. Bane, Chrmn., Hendersonville, N. C.--Bids opened Oct. 30 for following improvements:

Blue Ridge Road, from Hendersonville Bat Cave Road to Blue Ridge Postoffice; 4172 cu, yds. stone or gravel surfacing; from Blue Ridge Postoffice to foot of Lamb Mountain, 2346 cu, yds. stone or gravel surfacing.

Crab Creek Road, from Hendersonville to Drake's Store, 3650 cu. yds. stone or gravel surfacing; from Drakes Store to foot of Crab Creek Mountain, 2191 cu. yds. stone or gravel; from west side Crab Creek Mountain to Transylvania County Line, 1936 cu. yds. sand.

Haywood road from Hendersonville corporate limits to Mills River Bridge; Projects Nos. 1 and 2; 40.871 cu. yds. grading; 111,038 lbs. reinforcing steel.

3 mi. Horse Shoe Road, from Haywood road at Tom Osborne's towards Horse Shoe, 5280 cu. yds.; plans, etc., on file; Chas. B. Turner, County, Engr.

Road Construction.—Frio County, J. C. Pranglin, County Judge, Pearsall, Tex.—Bids until Nov. 10 for following:

17.2 ml. State Highway No. 2, from Pearsall to Medina County line; 48,314.7 cu. yds. gravel surfacing; 73,888 lbs. reinforcing steel; 180,558 sq. yds. 1½-in. bituminous surface treatment.

17.8 ml. State Highway No. 2; 49,460 cu. yds. gravel base; 5000 sq. yds. two course reinforced concrete pavement; 30,000 lbs. reinforcing steel; 1190 cu. yds. for bridges and culverts; 183.494 sq. yds. bituminous surface treatment; grade and construct drainage structures; J. D. Metcalfe, County Engr. (Lately noted.)

Road .Construction.—Louisiana Highway Comsn., Raymond Bldg., Baton Rouge, La. —Bids until Nov. 14 for following:

Surface, construct culverts and timber bridges on 4.03 ml. Crowley-Kaplan Highway; Arcadia Parish, Project 372.

Grade, construct drainage structures and gravel surface 16.1 ml. Winnsboro-Vidalia Highway; Franklin Parish, Project 371; plans, etc., from J. M. Fourmy, State Highway Engr.

Road Construction.—Ouachita Parish Police Jury, Road Dist. No. 1, C. W. Phillips, Prest., Monroe, La.—Bids until Nov. 8 for following Highways in Sec. C.;

7.2 mi. Monroe-Jonesboro.

1.5 mi. Horse Shoe Lake; plans, etc., from H. C. Daigre, Parish Engr.

Road Construction.—Morris County, J. W. Carson, County Judge, Daingerfield, Tex.—Bids until Nov. 1 for 2.81 mi. gravel surfaced road on State Highway No. 1; plans, etc. from J. V. Curnutte, County Engr., Morris County National Bank, Naples, Tex. (Lately noted).

Road Construction.—State Road Comsn., E. B. Carsardea, Secy., Charleston, W. Va.— Bids until Nov. 14 to grade, drain and pave with waterbound macadam 4.24 mi. Martinsburg-Hedgesville road; Berkeley County. Project No. 3028; plans, etc., from Div. Engr., Keyser, W. Va. (Lately noted.)

Road Construction.—State Highway Comsn, Raymond Bldg., Baton Rouge, La.—Bids until Nov. 7 for grading, constructing drainage structures and gravel surfacing following in Lincoln Parish:

3.98 mi. Ruston-Arcadia Highway; Sec. A,

10.48 ml. Ruston-Arcadia Highway; Sec. A, Project No. 110; plans, etc., from J. M. Fourmy, State Highway Engr.

Roadway.—Treasury Dept., Jas. A. Wetmore, Acting Supvg. Archt., Washington, D. C.—Bids until Nov. 21 to extend roadway at U. S. Public Health Service Hospital at Norfolk, Va.; plans, etc. on file, or from Supt. of Construction.

Road Comsn., J. D. Bulluck, Secy., Washington, N. C.—Bids until Nov. 17 for 2 sections of road on Chocowinity-Aurora road:

4.8 ml. road from Chocowinity towards Aurora,

2 ml. section of road at Edwards; 71,800 sq. yds. sheet asphalt, asphalt concrete or concrete; 425 sq. yds. gravel or waterbound macadam; 3 culverts, containing 54 cu. yds. concrete and 4250 lbs. steel; 2 bridges, 706 cu. yds. concrete, 69,240 lbs. steel and 3200 ft. piling; plans, etc. on file; H. W. Rankin. Engr.

Roofing.—Simpson & Elswick, Ashland, Ky. -See Building Material.

Roofing.—Morristown Normal and Industrial College, Judson S. Hill, Prest., Morristown, Tenn.—Slate roofing felt for dormitories.

Roofing and Siding (Corrugated).—Davis Foundry and Machine Works, Rome, Ga.—To purchase approx. 70 or 80 squares of corrugated roofing and siding; also same amount of painted roofing and siding; all 26 to 28 gauge.

Rubber Sheeting, etc.—M. J. Levey, Blackburn Bldg., Sarasota, Fla.—To correspond with mfrs. of rubber goods, such as sheeting, mens collars, etc.

Rubber Tire Machinery—Rodriquez Spring Wheel Co., 602-3rd St., Baton Rouge, La.— Prices on mchy. and materials used in making solid and inflated rubber tires.

Separating Machine (Air).—Georgia Talc Co., Asheville, N. C.—To purchase used or second-hand air pulverizing machine.

Sewing Machines.—Gaffney Knitting Mill, W. E. Peeler, Mgr., Gaffney, S. C.—In market for used Merrow U. D. sewing machines.

Shingles (Metal and Cree Dip.)—See Building Materials,

Shingle Mill.—Ashbrook Veneer Co., Lumberton, Miss.—Complete shingle mill.

Shovel (Electrically Operated).—D. C. Elphinstone (Mchy. Dealers) 408 Continental Bldg., Baltimore, Md.—Electrically operated shovel, 34 yd. dipper, caterpillar or traction tread; use in Virginia.

Skidder (Ground Hog).—Duncan Machinery Co., (Mchy. Dealers), Box 265, Knoxville, Tenn.—Jobbers' prices on ground hog skidder, 20 H. P., 1 mi. of 1-in. cable and 3 hinge blocks; to get logs out of rough mountain country.

Spraying Machines.—W. R. Patterson, Gordon Hotel, Room 230, Washington, D. C.—To correspond with mfrs. of spraying machines adapted to spraying plants in rows, preferably three rows at one time; adjustable to any height.

Sprays (Fog.)—Gonzales Cement Works, Gonzales, Texas.—Prices on fog sprays for curing products.

Springs (Flat, Curved).—Rodriquez Spring Wheel Co., 602-3rd. St., Baton Rouge, La.— Prices on flat, curved springs used in mfre, of spring wheels.

Steel Derrick Boat Hull.—U. S. Engrs. Office, Pittsburgh, Pa.—Bids until Nov. 20 for furnishing and delivering one steel derrick boat hull; information on application.

Steel Dump Scows.—U. S. Engineers Office, Buffalo, N. Y.—Bids until Nov. 6 for constructing three 400 cu. yd. steel dump scows; information on application.

Steel Water Tank and Tower.—Bureau of Yards and Docks, R. E. Bakenhus, Act. Ch., Navy Dept., Washington, D. C.—Bids until Nov. 15 for 200,000 gal. steel tank with tower and appurtenaces at the U. S. Veterans' Hospital, Tupper Lake, N. Y.; information on application. (Specification No. 4724.)

Stills (Fire and Steam).—See Refinery Equipment.

Sugar Refinery.—Hughes Grocery Co., Florala, Ala.—Data and prices on establishment of sugar refinery; to correspond with mfrs. of sugar mehy.

Tanks (Storage) .-- See Refinery Equipment.

Tanks (Elevated).—C. P. Staley, City Mgr., Fort Myers, Fla.—Bids until Nov. 17 for one 50,000 gal. one 75,000 gal. and one 100,000 gal. elevated water tank, standard construction 120 ft. high to balcony, 8 or 10-in. pipe from ground to tank; one tank only needed; size to be decided when bids are open.

Tapes (Limp Metal).—W. K. Harris, 206 W. 7th St., Austin, Tex.—To correspond with mfrs. of or dealers in limp metal tapes ¼ to ½-in. wide, sufficient to stand maximum strain of 15 lbs.; tapes to pass partly around a 1¼-in. shaft and must wind and unwind around approx. 1/5 the circumference of said shaft; tapes must be more flexible than clock or watch spring.

Tiling.—Fayetteville Ice & Mfg. Co., Box 426, Fayetteville, N. C.—Lowest prices on new or second-hand tiling; correspond with mfrs. or dealers.

Trucks (Kiln).—Ashbrook Veneer Co., Lumberton, Miss.—One hundred and fifty 4 ft. kiln trucks.

Tubes (Boller).—Board of Awards, Richard Gwinn, Register, City Hall, Baltimore, Md.—Bids until Nov. 8 to furnish and deliver 400 boiler tubes to Highways Engr. Dept.; specification obtainable from Room 8, City Hall, A. E. Christhilf, Highway Engr.

Water Works.—City of Groveland, Fla., Chas. J. Anderson, Chrmn. of Streets and Sanitation.—Data and prices on installation of water works.

Water Works and Sewerage System.—City of Covington, La., Robt. W. Badon, Mayor.—Bids until Nov. 21 for furnishing and laying approx. 11 mi. water lines and 10 mi. sanitary sewers and appurtenances; specifications, contract, etc. on file at office of Mayor, and at office of Kramer Engineering Co., Magnolia, Miss.

Willow Machines. — Greenville Mattress Mfg. Co., O. B. Van Wyck, Prest., Greenville, S. C.—Two willow machines for plant with daily capacity of 100 mattresses.

Woodworking Machinery.—Duncan Machinery Co. (Mchy. Dealers) Box 265, Knoxville, Tenn..—Lowest dealers prices on mchy. for mfre. of hardwood flooring, of high quality for general planing work.

Wiring and Fixtures.—Morristown Normal and Industrial College, Dr. Judson S. Hill, Prest., Morristown, Tenn.—Electric wiring and fixtures for dormitories.

p.

ę.

of

n

ry

ıt.

00

d:

908

th

Cı-

18

nd

ox

iih

h.

re.

de-

gr.

ay

and

lity

ing

ni-

ca-

FOR.

Co.,

ress

lant

Ma

ehv

nigh

for

8

wir-

Financial News

New Financial Corporations.

Ala., Alabama City—The Alabama City Bank, capital \$25,000, incptd. with Dr. C. B. Forman, Attalia, Prest.; Lee Friebmann, Gadsden, Vice-Prest.

Ark., Harrison—The National Bank of Garrison and the Citizens' Bank, merged, W. S. Pettit, Correspondent.

Fia., Miami—Miami Finance Corp., capital \$50,000, incptd. with J. D. Stuart, Prest.; Paul R. G. Sjostrom, Vice-Prest.

Fla., Ocala.—Reddick State Bank, capital \$15,000, incptd. with J. M. Smith, Prest.; J. P. Williams, Vice-Prest.

Ky., Lynchburg—Mutual Building and Loan Assn., capital \$100,000, incptd. with C. L. Snidow, Prest.; L. H. McWane, Vice-Prest.

La., Centreville—Teche Bank, capital \$25,-000, incptd. with James A. Peterman, Prest.; George D. Palfrey, Vice-Prest.

Mo., Herculaneum—Home Building & Loan Association, incptd. capital \$200,000, Directors: J. E. Ceisler, Dr. S. E. Woods, E. F. Horton, T. M. Masterson and others.

Mo., Kansas City—Continental National Bank and Trust Co., capital \$500,000 incptd. with W. P. Hemphill, Prest.; J. C. Williams, Cashier.

Mo., Princeton—The Farmer Bank and the Fuller State Bank merged, combined capital \$75,000, incptd. with L. M. Hyde, Prest.; J. N. Martin, Vice-Prest.; L. W. Hoover and Perry P. Coon, Cashier.

Mo., St. Louis—Guaranty Mortgage Corp., capital \$100,000, incptd. by L. K. Harris of Harris & Kober Diamond Importing Co., Sam Kessler, Ben Phillipson and others.

N. C., Ashville—French Broad Realty and Investment Co., capital \$100,000 incptd. by Dr. J. G. Anderson, Dr. E. E. Reeves, Dr. A. T. Pritchard, and Dr. A. W. Galloway.

Tenn., Memphis—Tri-State Securities Co., capital \$10,000, incptd. by S. A. Wilkinson, W. D. Eddins, Jason Walker, J. J. Marshall and P. J. Lacarini.

Tenn., Rockwood—City National Bank, capital \$50,000, incptd. with Jno. A. East, Prest.; C. F. Smith, Cashier.

Tex., Murphy—Liberty State Bank, capital \$15,000, incptd., Stockholders; Dr. D. Miller, J. B. Turner, J. T. Brigham and others.

W. Va., Huntington—States Finance, capital \$50,000, incptd. by R. D. Campbell, Jr., C. W. Campbell, Jr., P. Walder Ling, A. M. Hewit, all of Huntington.

New Securities.

Ala., Anniston—Sewers—City, J. L. Wikle, Mayor sold \$56,000 bonds to Ward Sterne & Co.

Ala., Birmingham—Public Improvements— City Comsn. receives bids until Nov. 7 for \$150,000 5½%, \$500 denomination, bonds. D. E. McLendon, Prest.

Fla., Clearwater—Base Ball Training Plant—City votes Nov. 21 on \$25,000 bonds. H. S. Ransom, Secy.

Fla., Clermont—Paving—Slayton Co., Toledo purchased \$65,000 bonds with \$771.50 premium. Address The Mayor.

remium. Address The Mayor.

Fla., Jacksonville— Refunding —Improve-

ment—A. T. Bell and Co., Toledo purchased \$289,000, 5% bonds, from County Commrs.

Fla., Plant City—School—City sold \$60,000, 6% bonds to Bumpus, Hall and Co., Detroit. Address The Mayor.

Fla., Plant City—School—Hillsborough County, Special Tax School Dist. No. 9, J. E. Knight, Secy. will vote Nov. 25 on \$10,000 bonds.

Ga., Atlanta—Street—City J. R. Seawright, Chrmn. Finance Committee receives bids until Nov. 3 for \$142.000, 5% bonds.

Ga., Dearing—School—Dearing School Dist, votes Nov. 18 on bonds.

La., Haynesville—Sewerage—A. H. Southern and the Planters Bank purchased \$75,000, 6% bonds from Claiborne Parish, Dist. No. 1,

La., Lake Charles—School—School Bd. F. K. White, Secy. receives bids until Nov. 7 for \$10,000, 6% bonds.

La., Lake Providence—J. Martian Hamley, Seey. Bd. of Drainage Commrs, receives bids until Nov. 15 for \$200,000, 5%, \$500 denom. bonds.

La., Many—Road—J. M. Abington, Secy., Police Jury receives bids until Nov. 6 for \$400,000, 6%, \$1000 denom. bonds.

La., New Orleans-Terminal-Orleans Parish votes Nov. 7 on \$5,000,000 bonds.

La., Plaquimine—Light—City, L. B. Leblane, Clk. voted \$150,000 bonds.

La., Shreveport—School Caddo Parish is issuing \$1,000,000 5% bonds. Address Police Jury.

Md., Williamsport—Water—Town voted \$100,000 bonds. Address The Mayor.

Miss., Bay St. Louis—Water—The Hancock County Bank, Bay St. Louis purchased \$58,000, 6% bonds.

Miss., Belzoni—Road—Humphreys County, Board of Supvrs., Beat Three Road Dist., will vote Nov. 3 on \$100,000 bonds.

Miss., Hattiesburg—School—Forrest County Bd. of Supvrs., Herbert Gillis, Chancery Clk. receive bids until Nov. 18 for \$50,000, 6% bonds.

Mo., Excelsior Springs—Bridge—City will vote Nov. 14 on \$14,000 bonds. Address The Mayor.

Mo., Paris—Water and Light—Town voted \$57,000 bonds. (Lately noted.) Address The Mayor.

N. C.,Bolton—Drainage—Bd. of Drainage Commrs., F. L. Finkenstaedt, Chrmn. receives bids until Nov. 20 for \$60,000, 6% bonds.

N. C., Brevard—Public Improvement—Caldwell & Co., Nashville purchased \$50,000, $5\frac{1}{2}\%$ bonds.

N. C., Elizabeth City—Improvements—City, W. Bell Goodwin, Mayor receives bids until Dec. 15 for \$300,000, 6%, \$1000 denom. bonds.

N. C., Gastonia—Street—Stacy & Braun, Toledo, and the Northern Trust Co., Chicago jointly purchased \$400,000 bonds.

N. C., Lincolnton—Water, Sewer and Light—Town sold \$118,000, 5½%, \$1000 denom. bonds to Sidney Spitzer Co. Address The Mayor.

N. C., Shelby—Sidewalk and Streets—Town, T. T. Gardner, Mayor, will issue \$125,000 bonds.

N. C., Tryon—Street—Bd. of Commrs., W. B. Stone, Clerk receives bids until Nov. 6 for \$12,000 6%, \$500 denom. bonds.

Okla., Medford-Roads-Grant county will vote on \$1,000,000 bonds. Address County Commissioners.

Okla., Perry—Fire Department, City voted \$20,000 bonds. Address The Mayor.

S. C., Bamberg—School—School Bd. G.

O. Simmons, Secy., receives bids until Oct. 30 for \$35,000, 6%, \$1000 denom. bonds.

S. C., Clover—Sewer—Town, V. Q. Hambright, Clk. receives bids until Nov. 25 for \$65,000, 6% bonds.

S. C., Clover—Sewer and Water—City voted \$65,000 bonds. John A. Jackson, Supvr.

S. C., Florence-Indebtedness - Florence County Commrs., Frank J. Brand, Chrmn., will vote Nov. 7 on \$350,000 bonds.

S. C., Ridgeway—Light, Water and Sewer—Town voted \$60,000 bonds. Address The Mayor.

S. C., Sumter—Paving—The Hibernia Securities Co., Atlanta purchased \$100,000, 5% bonds.

S. C., Walhalla—Street Paving—Town contemplates voting on \$50,000 bonds; Ryan Engineering Co., Engr., Columbia, S. C.

Tenn., Memphis-Drainage-Bank of Commerce & Trust Co. purchased \$16,000 bonds.

Tenn., Memphis—Water, Sewer, Street, Hospital, Terminal and Warehouse—City will receive bids until Dec. 6 for \$2,961,000 bonds. C. S. Pashby, Clerk. (Lately noted.)

Tex., Alvarado—Street, Water and School— Breg, Garrett & Co., Dallas purchased \$19,000 street, \$30,000 water and \$9000 school bonds all at 5%.

Tex., Bay City—Roads—Macagorda County Commrs. Court receives bids until Dec. 11 for \$110,000, 51/2%, \$1000 denom. bonds.

Tex., Celina—Light—Town, J. E. Ousley, Mayor votes Nov. 28 on \$50,000 bonds.

Tex., Ennis—Hospital—City will sell \$50, 000, $5\frac{1}{2}\%$, \$1000 denom. bonds. Address The Mayor.

Tex., Ennis—School and Water—City will sell \$95,000, 5%, \$1000 and \$500 bonds. Address The Mayor.

Tex., Ft. Worth—Road and Bridge—Tarrant County sold \$1,200,000, 4%, bonds to the Harris Trust and Savings Bank, Chicago and the First National Co., St. Louis.

Tex., Ft. Worth—Road and Bridge—Tarrant County, Commrs. are offering \$1,200,000 bonds.

Tex., Gainesville—Indebtedness—City voted \$25,000 bonds. Address The Mayor.

Tex., Gatesville—Water—Prudden & Co., Toledo purchased \$42,000 bonds.

Tex., Lancaster—Water and Sewer—City will sell \$15,000, 6%, \$1000 bonds. Address The Mayor.

Tex., Linden—Road and Bridge—Cass County, Road Dist. No. 16, voted \$20,000 bonds; Hess & Skinner, County Engrs., Southwestern Life Bidg., Dallas.

Tex., Lufkin—Road—T. H. Bowman, Austin purchased \$500,000, \$10000 denom. bonds for Stern Bros & Co., Kansas City and The Liberty Central Trust Co., St. Louis.

Tex., Mason—Road—Mason County Commrs. will vote Nov. 4 on \$9000 bonds; J. T. Banks, County Judge; Joe Gresham, County Engr.

Tex., Meridian—Water—Breg, Garrett & Co., Dallas purchased \$20,000, 6% bonds.

Tex., Navasota—Street, Sewer, Park, Town voted \$150,000 bonds, including \$90,000 for streets, \$50,000 for sewer system and \$10,000 for park. Address The Mayor.

Tex., Orange—Navigation—Orange County Navigation Comsn., will vote on \$175,000 bonds.

Tex., Palestine—Road—Anderson County, Commrs, Court votes Nov. 21 on \$1,500,000 bonds.

Tex., Port Arthur—School—City sold \$675,-000 bonds at par and accrued interest to E W. McNear & Co., and Bosworth, Changes & Co.

Tex., Sweetwater—School—School Bd. will vote in December on \$80,000 bonds.

Tex., Tulia—Light, Water and Sewer—City voted \$100.000 bonds. Address The Mayor. (Lately noted.)

Tex., Wylie—Waterworks—Town, George W. Housewright, Mayor will vote Nov. 9 on \$50,000 bonds.

Va., Elkton-Water Works-City contemplates issuing \$75.000 bonds. Address The Mayor.

Financial Notes.

Guaranty Trust Corp., Athens, Ga. plans increasing capital to \$1,000,000.

Home Building & Loan Assn., Sand Springs, Okla., increased capital to \$500,000.

Jefferson Savings & Building Assn., Louisville, Ky. increased capital to \$7.500,000.

Security Building & Loan Assn., Guymon, Okla., increased capital to \$500,000.

St. Louis Building and Loan Assn., St. Louis, Mo., increased capital to \$5,000,000.

Va., St. Petersburg—The Petersburg Mutual Building and Loan Assn., increased capital to \$2.500,000, Charles T. Lassiter, Prest.; Fred Pilcher, Vice-Prest.; H. R. Hall, Secy. and Treas.

Washington Building and Loan Assn. Washington, D. C. contemplates increasing capital to \$800,000.

Trade Literature.

Sales of Government Goods.

A little booklet entitled "War Surplus," just issued by the Sales Promotion Section of the Office of Director of Sales, Washington, D. C., describes in a general way the sales methods pursued by the War Department in disposing of its vast stocks of surplus property left over from the war, and also tells what these stocks contain. It is easy, not at all difficult to buy from the Government. The terms of sale are simple. Goods are sold either at auction, or by sealed bids, by informal bids or by fixed In auction sales each bidder is given a paddle bearing a number and when he bids he raises the paddle so that the auctioneer can read the number. Bidders must make a deposit of at least \$200 before bidding, but this money is returned if no purchases are made. This applies to large auctions. Sealed bids must also be accompanied by a deposit -usually 10 per cent of the bids. Informal bids are made after individual negotiations and may be accepted only when approved by the Department. Selling by fixed prices 18 conducted like a mail order business. Every kind of commodity, it is stated, is offered in these various sales. Auction sales to be held soon include quartermasters' supplies, November 10, at Schenectady, N. Y.; No vember 14, Camp Lewis, Washington; November 15, Brooklyn, N. Y.; Nov. 17. Boston, Mass.; November 21, Camp Knox, Ky.; November 23, Chicago, Ill.; December 4, New Orleans, La.; December 5, San Antonio, Tex. Air Service equipment will be sold by auction on November 14 at Long Island, N. Y., and medical supplies on November 16 at Philadelphia, Pa. Requests for catalogs and other information should be to "Chief Sales Promotion Section, Room 2515 Munitions Building, Washington, D. C."

Road Machinery Catalog.

The Good Roads Machinery Co., Inc., Kennett Square, Pa., have issued a fine catalog bearing the title "Champion 'Crushing and Quarrying Machinery." It covers rock crushers, elevators, screens, conveyors, portable stone bins, winding drums, dump cars, and rock drills manufactured by the American Road Machinery Co., also of Kennett Square, for which the company issuing the catalog are general sales agents. The book is written, illustrated and printed in a superior manner. Some of the pictures show completed machines as they are offered for sale, others display installations at various places.

Stokers and Stoker Tests.

Bulletin C. B. 1, 1922, issued by the Combustion Engineering Corporation, Broad St., New York, relates to the Coxe stoker and covers particularly the performance of the stoker on western and mid-western bituminous coals. A number of test reports, each accompanied by corresponding curves, are included. They show very remarkable results, it is stated, and because they are complete will be of considerable interest to engineers. A Service Bulletin, also issued by the Corporation, shows why a proper charge for real stoker service would not only be fair to the recipient, but that it would be to his advantage. This bulletin is illustrated with an interesting cartoon story.

A New Link-Belt General Catalog.

A new general catalog, No. 400, is announced by the Link-Belt Company of Chicago, Philadelphia and Indianapolis. It embraces the entire line of products made in the plant as well as the products of the H. W. Caldwell & Son Company plant of the Link-Belt organization. It has 832 pages and is bound in cloth. A copy can be obtained by anyone interested from any branch office. Among the contents are chains and wheels, to which 220 pages are devoted, power-transmission machinery, boiler plant equipment, coal tipple equipment, sand and gravel washing equipment, lime handling equipment, elevators and conveyors, sugar plantation and refinery machinery, electric hoists, cranes, etc., besides many other products.

Improved Shovel and Excavator.

The "New Marion 21" is a 34-yard shovel that is completely illustrated and described in a bulletin just issued by the Marion Steam Shovel Co., Marion, Ohio. The basic design of this sized shovel has not been altered, but there is a distinctly new type of rigid crawler trucks and there is a power steering arrangement that is entirely controlled by the operator without assistance. The machine can be turned in a circle as small as 18 feet 8 inches in diameter. The four-belt flexible type of trucks can also be furnished. Other mountings include traction wheels with either rubber or steel rims, besides railroad wheels for use on track. This shovel is readily converted into dragline, clamshell or orangepeel excavator or else into a material-handling crane. High lift equipment can be supplied if desired.

New Business Barometer Method.

A "Business Barometer Dial" is a new thing announced by the Business Bourse, 347 Fifth Ave., New York, which describes it as "a cross section of the buying of the ultimate consumer, furnishing the most sensitive index existing of general business and sales conditions." It makes, in the form of a dial, comparison of sales factors and of it the further statement is made that it "is based upon analysis and averaging of the confidential sales figures of nu-

merous of the country's biggest businesses. Data is received monthly and chart changes every month and shows current and five year conditions (through use of moving total system employed) of the most important divisions of business selling direct to user."

Book Reviews.

The First Million the Hardest. An autobiography by A. B. Farquahar, in collaboration with Samuel Crowther. Garden City, New York: Doubleday, Page & Company. 1922.

This book is the story of his life told by A. B. Farquahar, of York, Pa., head of the A. B. Farquahar Company, Limited, manufacturers of agricultural machinery, engines, and implements. It is a direct, simple narrative, abounding in human interest and presenting convincingly the fundamental principles of business success. It is full of anecdotes relating to most of our prominent and well known men of the last 60 years, for Mr. Farquahar is in his eighties and knew many of the great men of the Civil War period, including Lincoln, Grant, Edwin M. Stanton, Horace Greeley, and others, all of whom are mentioned are figures in various incidents related in the volume. Later he met and knew some of the industrial leaders. such as Andrew Carnegie, besides many others. From the very beginning he had a way of getting in touch with big men by his very directness and frankness of purpose, Before he was 20 years of age he went to New York to ask Wm. B. Astor, A. T. Stewart, James Gordon Bennett, the elder, and other "How can I make a million millionaires: dollars?" He says he was "fired with the notion that the way to get along in world more rapidly than the next fellow was to find the secrets of those who had made the high scores." "It was not." he continues, "that I was greedy for money, for the whole teaching of my father had been to the end that no man could be properly be called a man who let his love for a dollar interfere with his love for a book -which is a precept that has always stayed with me." Mr. Farquahar and his forbears were members of the Society of Friends. commonly called Quakers, and the story he tells reveals many of the charming characteristics of those gentle, kindly, industrious folk, whose example in life has set up such high standards of peace and sincere humanity. He was a country boy from Sandy Spring, Md., but employed at York, when he started on his eventful journey to the metropolis on the Hudson which he reached in the early morning and literally "butted in" on Mr. Astor at his office at eight o'clock, (business men got down town earlier then than they do now), and rushing past a venerable clerk who vainly tried to stop him in an outer room, stood before the head of the Astor millions. "Well, boy, what do you want?" snapped the millionaire. up a chair by him," says Mr. Farquahai, and said: "'I want to know how to make a million dollars." Mr. Astor smiled slightly and then gently said: "Do you want to make yourself as miserable as I am, and stay up all day and half the night trying to keep people from cheating you? I never made any money myself. It takes all my time to collect rents and to see that people do not get away without paying their rent." At Mr. Astor's suggestion the boy went over to see John A. Stevens at the Bank of Commerce, who in turn sent him to George Coe of the American Exchange Bank. A board meeting was to be held and he met several of the directors, who all talked with him, and the sum total of their advice, Mr. Farquahar presents thus: "Take care of y ie ns, rid al

nt rs, nd vii

he rs, ny a by se. to rt, ner ion

he ney,

opfor ook yed

nds,

racious

such nan-

ndy

the ched tted tight

rlier past stop head t do

make lightnt to

and rying never

time

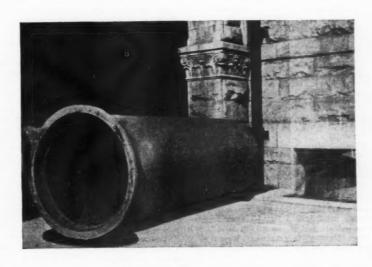
le do

ent."

over k of

eorge

Bank. e met with . Mr.



PIPE SERVICE

One of five lengths of 48 inch Cast Iron Bell and Spigot pipe taken up at the Mount Royal pumping station, Baltimore, to allow for the installation of a Venturi meter. After thirty years of constant service this pipe was in perfect condition and has been relaid.

Write us outlining your requirements.

United States Cast Iron Pipe and Foundry Co.

GENERAL OFFICE: BURLINGTON, NEW JERSEY

SALES OFFICES:

Philadelphia—1421 Chestnut Street
New York—71 Broadway
Pittsburgh—Henry W. Oliver Building
Dallas, Texas—Scollard Building

Chicago—122 South Michigan Boulevard Cleveland, Ohio—1150 E. 26th St., N. E. Birningham, Ala.—1002 American Trust Building Cincinnati, Ohio—Dixie Terminal Bldg.

San Francisco—Monadnock Building Minneapolis—Plymouth Building Buffalo—957 E. Ferry St. St. Louis—Security Building Kansas City—Interstate Building.

For quotations and estimates, apply to nearest sales office

your character, never break a promise, and give value for what you get. Avoid specula-An old man whom he also met in the tion." bank and who he thinks was Hamilton Fish, said to him: "If you never break a promise, if you always pay the money you owe exactly the day it is due, nobody will know but that you are worth a million. And you will be just as good a risk as a man worth a million, for all that he could do would be to pay on the due date." Next the young Marylander called on James Gordon Bennett, who keenly perceived that he was hungry; "Look here, young man, you look as though you had not eaten breakfast." That was so, for he had been so interested in his question and the answers thereto that he had forgot to eat. Bennett said: "Give this card to the head waiter at the Astor House." He went there and had his breakfast and returned to Bennett's office. Mr. Bennett ad-

vised him to always maintain his health. "If you get plenty of sleep and be careful of your diet you will never be sick." That was his advice in addition to counseling industry and constant application to business. Fortified with the admonitions given him by New York's most prominent men in finance and commerce, young Farquahar returned home to York, where he was an apprentice shop making agricultural implements. Evidently his New York experiences made a deep impression upon him for his career has been distinguished by steadfast, intelligent industry in which he steadily progressed, leading him to go into business upon his own account and build up the large manufacturing plant that now bears his name. His story is so interesting that few who begin reading its pages will find it other than difficult to put down the book until they have finished

this pipe is really 54 years on the market. When work began at McKeesport, the product of the plant was only boiler tubes of two inches diameter, but now tubes are made of all sizes from ½-inch diameter to 30 inches. Then there was only one building, but now there are scores for conducting the various processes and for making the varied sizes of tubes. Among them is one that is said to be the largest mill under one roof existing anywhere. Furthermore, progress and expansion continue to distinguish the life of the company.

New and Improved Tractor.

Patents have been granted to Charles J. Britt, of Willington, S. C., for a traction engine and tractor for which particular merits are claimed. A prominent feature of the machine is that it has three wheels to run on, which it is stated, makes it very easy to travel over uneven ground and the tractor is more stable than such machines usually are. The machinery also facilitates turning of sharp corners. It is described as being a simple and inexpensive machine to purchase and operate and it is adaptable for a variety of purposes. Associated with Mr. Britt in plans looking to the manufac-ture of the tractor is P. T. Jones, Jr., of Corinth, Miss. The inventor has also engaged the services of an engineer to arrange for manufacturing.

Important Navy Yard Sale.

Bids will be opened at 11 A. M., Wednesday, November 22 at the U.S. Navy Central Sales Office, Navy Yard, Washington, D. C., according to an official announcement appearing elsewhere in this issue, for the sale of 10,000,000 pounds of steel tubes and tubing, unused. There are about 2,750,000 pounds of tubing in 11 lots, besides 7,250,000 pounds of boiler tubes in 24 lots, the materials being located at several paval denote on both the Atlantic and the Pacific sea coasts. Bids will be considered on one lot or more lots, on all lots on the Atlantic coast, or on the Pacific coast, or else on all of the lots. Catalogs may be obtained from the supply officers at several navy yards mentioned in the announcement, which also gives particulars as to materials, terms of sale, etc.

INDUSTRIAL NEWS OF INTEREST

Items of news about industrial, railroad or financia, interests, building operations, construction work, municipal improvements, or the sale of machinery or the letting of contracts in the South or Southwest, are invited from our readers whether they are advertisers, or subscribers or not. We invite information of this character from readers in the North and West about their Southern business operations, as well as from Southern readers. News of value will be published just as readily when from non-advertisers as from advertisers.

Election of a New Secretary.

Edward E. Duff, Jr., the newly elected secretary of the National Paving Brick Manufacturers Association, will assume his duties on or about January 1, when Maurice B. Greenough, the retiring secretary, will become associated with W. M. Lasley, of Chattanooga. Tenn., in various enterprises, including the manufacture of paving brick. Mr. Duff has been field engineer for three years with the Eastern Paving Brick Manufacturers Association and is particularly experienced along the lines of street paving and highway construction as well as concerning the manufacture of brick.. Before that he with the Pennsylvania Railroad's engineering department; and he also spent several years in municipal engineering and management at Sewickley, Pa. During the great war he was a captain of engineers with the United States forces in France. He is a graduate of the Department of Civil Engineering of the Carnegie Institute of Technology.

Fifty Years of Success In Tube Manufacture.

The National Tube Works at McKeesport, Pa., established in 1872, recently celebrated its fiftieth birthday. It is now known as the National Works of the National Tube Co. Its beginning was with a small plant and it is now at the forefront of manufacturers of tubular products. The uninterrupted progress of these works is the result of wisdom and energy intelligently applied to industrial production. The management, besides early establishing a sound reputation for a superior product and for square dealing, has always kept in touch with the spirit of advancement and has continued to place on the market goods whose merits would commend them to dealers and consumers with the result that they have literally sold themselves. It is especially noteworthy that although the McKeesport works have but fifty years to their credit, the history of pipe bearing the National name shows that the works had their inception in Boston, to be exact, East Boston, Mass., in 1868, so that

Practical Demonstration in Scientific Farming.

An interesting development in scientific farming is described in a recent issue of the Knoxville Sentinel, showing the results achieved on the farm of the American Limestone Company at Mascot, Tenn. The policy of the company is to offer a practical demonstration of what can be accomplished with the soils of this section when properly developed. It is stated that the character of the soil and the general conditions on this farm are typical of the average farm tracts in Eastern Tennessee, and in other large areas of the Southern Appalachians.

The development of the American Limestone Company is visited every year by many farmers, who desire to get the latest and best information on-methods of securing the highest soil fertility and maximum production. Demonstration at the farm is not confined to soil improvement, but includes every branch of farm operation, especially the raising of fine herds of cattle.

The American Limestone tract consists of from 850 to 900 acres of highly developed land, all of which has been cleared and prepared for cultivation within the past eight years. By the application of lime, and through intelligent methods of cultivation the soil has been brought to a high state of productivity. There are 65 acres in alfalfa yielding 45 cuttings a season; forty acres more are being planted. In

addition to alfalfa there is grown red clover, corn, wheat, oats and other forage and food crops. In treating the soil H. R. McElveen, superintendent of the farm, states that from two and one-half to four tons of lime an acre is sufficient for the average soil in that section of Tennessee.

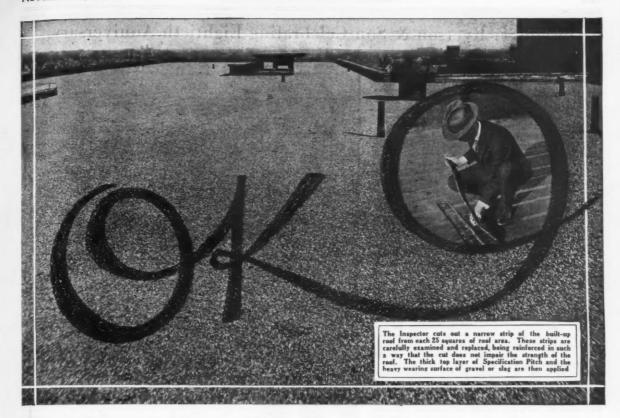
Those who have visited the farm are impressed with the careful selection of the crops, the manner in which they are adapted to the soil and climate, and the splendid showing of pure bred live stock.

Will Expend \$200,000 to Improve Clubhouse.

Richmond, Va., October 27—Adopting the report of a special committee, the Westmoreland Club has decided to increase its non-resident membership from 250 to 500 and expend \$200,000 to enlarge its building. Preliminary plans will be prepared at once by Alfred C. Bossom of New York and work begun as soon as possible.

Cotton Seed Breeding Plant Established.

Reyno, Ark., October 26—R. L. Bennett & Son of Paris, Tex., have established a \$50,000 cotton seed breeding plant at this point. It is the intention of the company to arrange for other plants in northeast Arkansas during the coming year.



The job is not done until the Inspector's O. K. is on the Barrett Specification Roof—

Not until the finished Barrett Specification Bonded Roof is approved by a Barrett Inspector, is the roofer's contract with the owner completed. For the Surety Company Bond which guarantees the roof against repair and maintenance expense is issued only on the Inspector's O. K.

And not until the Inspector is sure that the roof conforms strictly to The Barrett Specification-not until he is sure that the required number of layers of Specification Felt and Specification Pitch were used, and properly used —does he approve the job.

He bases his approval upon his own careful observations while the roof was under construction, and as a final and absolute check on both the materials and the workmanship he makes the famous "cut-out test" just before the wearing surface of gravel or slag is applied. This test is shown and described in the picture above.

The Barrett Inspector takes no chances, for the roof must remain staunch and tight during all the years of the bonded period.

The Barrett Bond Guarantee is therefore even more than a readily enforceable pledge of "no roof repairs." is proof positive that the roof was properly constructed of the highest grade materials. And after all this is the best insurance of long uninterrupted roof service.

There are two types of Barrett Specification Bonded Roofs—Type "AA", bonded for 20 years, and Type "A", bonded for 10 years. Both are built of the same highgrade materials, the only difference being in the quantity used. Before specifying or closing contract for either of these Bonded Roofs, be sure to read carefully all the stipulations contained in the specifications, copies of which will be sent free on request.





New York
Cincinnati
Minneapolis
Sait Lake City
Minwaukee
Cilizabeth
Jacksonvillo
Chicago
Pittsburgh
Dallas
Sangor
Toledo
Buffa to
Jacksonvillo
San Francisco

Philadelphia Detroit Syracuse Washington Columbus Baltimore

Cleveland Kansas City Duluth Youngstown Bethlehem

THE BARRETT COMPANY, Limited: Montreal Vancouver St. John, N. B.

Toronto Winnipeg Halifax, N. S.

Barrett freeification Roofs Bonded for Years

2. et. uct of les. OUS

of

ing exof ion ılaı of to ery

the

ines atea 88 to facof ennge

nestral C., aptub ,000 0,000 mapots 868

ntie e on ined ards also s of

eat.

soil rom eient the are wing

ecial rease pend II be work

aris. plant ange ming

Joseph T. Ryerson & Son Celebrating Eightieth Anniversary.

Joseph T. Ryerson & Son, whose iron, steel and machinery establishment is one of the oldest business concerns in the city of Chicago, will celebrate its eightieth anniversary this month. The business was established in 1842 by Joseph T. Ryerson, and was incorporated in 1888, the present chief officers being Clyde M. Carr, president, and Joseph T. Ryerson, vice-president, with Edward L. Ryerson chairman of the board of directors, he having retired from the presidency 10 years ago, after filling that place from the death of his father. Joseph T. Ryerson, the founder the death of his father, Joseph T. Ryerson, the founder of the firm who died in 1883. When Mr. Ryerson went to Chicago in 1842, as the agent of Woods, Edwards & McKnight, iron masters, of Pittsburgh, his journey from Philadelphia thither was by rail to Columbia, Pa., stage coach thence to Pittsburgh, thence by stage to Cleveland, where he went on a boat to Detroit, thence by rail to Jackson, Mich., from there to St. Joseph, Mich., by stage, and finally from there by boat across Lake Michigan to Chicago, which city then had about 6000 population. The city grew fast and the business grew with it, the steel business flourishing. Soon a branch was opened in Urbana, Illinois. At times the main offices and warehouses in Chicago have occupied several different locations, until they finally settled at Sixteenth and Rockwell streets, with a downtown office in the Corn Exchange Bank Building. In addition to its Chicago plant the firm has steel service plants in Detroit, St. Louis, Buffalo and New York. All this expansion was the result of opening the first store in Chicago with a stock worth but \$20,000, the business being now rated in the millions. Its progress from such a small beginning was marked by a series of expansions and additions, the only interruption experienced being that caused by the Chicago fire in 1871, but Mr. Ryerson, with characteristic energy, immediately obtained shed room for his business and by March 15, 1872, less than six months after the conflagration, his store was rebuilt and occupied. Edward L. Ryerson, son of the founder, continued to push the business after the fashion of his father and to facilitate its activities incorporated it, becoming president, in which position he continued active until his retirement. The plant now occupies a ground area of more than 19 acres. Mr. Carr, who succeeded Mr. Ryerson as president, had been for years active in sales and administrative work of the company, and reporting to the president's office is an executive committee of five vice-presidents, viz.: Joseph T. Ryerson, Donald M. Ryerson, Jr., George Moody and E. L. Hartig. In 1894, the company bought the plant of the W. G. Hagar Iron Co., increased the plant capacity 100 per cent and began to serve southwestern territory directly from St. Louis. In 1915 the New York plant was erected, in 1917 the plant at Detroit was completed, and in 1919 the warehouse of the Ferguson Steel & Iron Co., at Buffalo was purchased and later enlarged. Altogether the five plants cover more than 40 acres with a combined floor space of nearly 1,500,000 square feet. It is also interesting to mention the fact that members of the Ryerson family have been interested in the iron business m one way or another for several hundred years. In the latter part of the 17th century, George Ryerson and associates began to work iron mines in the northern part of New Jersey, while his son, Marten Ryerson, succeeded him in producing iron in the 18th century. An old furnace at Wynokie still stands with the Ryerson inscription upon it. Thomas Ryerson, a son of the latter, located in Philadelphia about 1790 as a wholesaler of iron and steel, and Joseph, his son, in turn continued in the same business, waileh he at last gave up at Philadelphia to go to Chicago. dent, in which position he continued active until his retirement. The plant now occupies a ground area



Will Develop 4000 Acres of Florida Lands—Plan Sugar Refinery and a Syrup Mill.

Fort Lauderdale, Fla., October 27—[Special.]—The International Sugar Corporation of Washington, D. C., Howard Allen, Gen. Mgr. has completed the purchase of 4000 acres of land near Fort Lauderdale, and plans to have it drained by the first of the year. It will then be planted to sugar cane. The company was organized for the purpose of erecting a sugar refinery, but the mill will not be erected before 1924. It is making contracts now with parties on Lake Okeechobee for planting next year two thousand acres more land than it

owns, expecting eventually to erect a syrup mill at that point, and take the juice to its refinery by water.

Herbert Stackhouse is field superintendent, and James H. Zeering of Miami is the drainage engineer. The Chase Motors Co. of Miami will furnish equipment and material.

Definite plans for the erection of a new jail building for Monongalia County at Morgantown, W. Va., have been determined and a number of contracts awarded. Cole Bros., of Morgantown secured contract for masonry and will begin work immediately. Sidney F. Heckert of Pittsburgh, Pa., is the architect.

NEW YORK STATE



Texaco Asphalt Macadam on Ulster County Highway No. 16, part of New York State Highway System.

What should be the part of the Asphalt Macadam pavement in a State System of Highways?

—a question of the greatest significance to highway builders.

One reliable and convincing answer to that question is to be obtained from a brief survey of the New York State Highway System.

These facts are pertinent and authentic.



Texaco Asphalt Macadam at West Point Military Academy, West Point, N. Y.

At the start of the present year the bituminous macadam type was represented on the highway system of New York State to the extent of 3,254 miles. This was equal to almost twice the total of all other kinds of paving combined, with the exception of water-bound macadam of which there were 3,908 miles.

A comparatively low first cost with a reasonable upkeep and a lasting, gratifying service. These are the qualities which have placed bituminous macadam so extensively on the highways of this State.

TEXACO



The Texas Company

Asphalt Sales Dept., 17 Battery Pl., New York City



New York Philadelphia

that s H. otors

for

eters., of pegin Pa.,

Richmond

Jacksonville Atlanta New Orleans Memphis Chicago Cleveland Oklahoma City Kansas City Houston Minneapolis Dallas

PATENTS TRADE-MARKS
AND
COPYRIGHTS

Before disclosing an invention the inventor should write for our blank form, "EVIDENCE OF CONCEP This should be signed and witnessed, and if returned to us, together with model or sketch and description of the invention, we will give our opinion as to its patentable

Our Illustrated Guide Book, "HOW TO OBTAIN A PAT-ENT," sent Free on request. Contains full instructions regarding Patents and Trade-marks.

VICTOR J. EVANS & CO., - Patent Attorneys

New York Offices Philadelphia Offices
R 1003 Woolworth Bldg 135 S. Broad Street

514 Empire Bldg.

Chicago Offices, 1114 Tacoma Bldg.

Main Offices: 749 9th Street N. W

WASHINGTON, D. C.

Investment Bankers

Power and Light Securities issued by companies with long records of substantial

We extend the facilities of our organization to those desiring detailed information or reports on any of the companies with which we are identified.

Electric Bond and Share Company

(Paid-up Capital and Surplus, \$30,000,000)

71 Broadway



HAMMERMILL LETTER HEADS

For Bank, Mill, Mine, Factory and Commercial House 8 ½ x11-Full 20 lb. Weight ---\$5.35 ---- 8.70 5000----\$16.75 10000----- 28.50

Shipped 48 Hours After Receipt of Order Charges prepaid to your railroad station Samples on request LAREW PRINTING CO., Knoxville, Tenn We Buy Bonds City, County, School and Road, from

Municipalities and Contractors WRITE

THE PROVIDENT SAVINGS BANK & TRUST CO.

YOUNG & SELDEN COMPANY

MANUFACTURING

Bank and Commercial Stationers

BALTIMORE, MD.

SOUTHERN We Buy MUNICIPAL
Correspondence Solicited BONDS

CALDWELL & CO., NASHVILLE, TENN.

New York
Cincinnati
Chattanooga
St. Louis
Knozville

Advertising Needs Time to **Develop Opportunities**

Give Advertising Time: That is the thing it needs most.

The Advertising agency is the precocious infant among the professions. One of the oldest agencies in New York prints on its letterhead the date of its founding, and that date is 1869! Think of it-almost ten years after the Civil War; and the boys of the Civil War are still alive among us.

Law traces its ideals and traditions back to Moses; but even Law is not free from missteps. The physician takes his Hippocratic oaths, and Hippocrates lived 400 B. C.

Yet it was only yesterday when doctors discovered that bad teeth can cause anything serious. Is it fair to expect perfection in a profession that counts only a single generation to its credit? Should it occasion surprise when even a welllaid advertising campaign goes wrong? Is it any wonder that workers whose chief raw material is human nature should have to confess that they cannot always tell in advance just how that raw material will act?

We are learning. We have just passed through one great cycle of inflation and deflation. We know now what happens to the automobile business, and the shoe business and the perfumery business when prices go up like a rocket and come down like a stick. How much wiser counsellors to our customers we shall be when another cycle swings around.

How much better we shall be able to read the signs of the storm, having passed through one such tempest.

Do you remember the references in English novels to those old law firms-solicitors-in which sons have succeeded their fathers to the third and fourth generation? Each new generation of lawyers has handled the affairs of the new generation among its clients, dealing out counsel based on records which run back for a hundred years or more. There is no reason why advertising agencies, too, should not outlive their founders and the successors of their founders growing wiser with each generation and gathering a priceless possession of recorded experience.

Think of an advertising agency in 2020 being able to turn back in the records to 1930 and say to its clients: "In the Fall of 1920 this happened in silk, and this happened in leather and this happened in wheat, and the selling problems which followed were so and so. The present situation has certain aspects that are similar; and the recommendations which we are presenting are based on a recognition of that

We are gaining experience; we are growing more and more valuable as advisers every year.

Don't expect the impossible. Give advertising time.

Published by the MANUFACTURERS RECORD in co-operation with The American Association of Advertising Agencies

ROBERTSON, FURMAN & MURPHY

ACCOUNTANTS—ENGINEERS—TAX SPECIALISTS

906	Singer B	uilding -				New	York	, N.	Y.
626	Southern	Building				Wash	ington	, D.	C.
317	Connally	Building				Atla	nta,	Geor	gia

THE BANK OF ALABAMA

R. A. TERRELL J. W. MINOR FOSTER HAMILTON

We Solicit Your Business

TODD & McCOLLOUGH

Members of

AMERICAN SOCIETY OF CERTIFIED PUBLIC ACCOUNTANTS

Auditing, Cost and Accounting Systems, and Federal Tax Service.

No. 328 South Tryon St.

Charlotte, N. C.

MARYLAND TRUST COMPANY

BALTIMORE

Transacts a General Trust and Banking Business

Correspondence and interviews invited

CAPITAL. \$1,000,000

We Buv

Southern and Western **Municipal Bonds**

Wire at our expense

CAMPBELL & KINSEY

Bonds 230 Superior St.

Toledo, Ohio

ches: 618 Penebacot Bldg. Detroit; 313 Dixie Terminal, Cincinnati.

MARINE BANK & TRUST COMPANY New Orleans, Louisiana

Capital and Surplus

\$2,300,000.00

General Banking - Domestic and Foreign Correspondence Invited

WE BUY MUNICIPAL BONDS

Write us if your community is contemplating issuing bonds or has bonds to sell.

THE W. H. SILVERMAN CO.

309 Mercantile Library Bldg.,

Cincinnati, Ohio

Forms, Law and Pointers
Estimates of Cost Furnished Without Cost

DELAWARE REGISTRATION TRUST CO. 100 West Tenth Street Wilmington, Del.

J. Ernest Smith, President and General Counsel, Chas, Warner Smith, Vice-President, Harry W. Davis, Secretary and Treasurer,

WANTED County, County,

Offerings of entire issues of the above bonds solicited

HAROLD G. WISE & COMPANY

Established 1915,

HOUSTON, TEXAS

A. T. BELL & CO. SECOND NATIONAL BANK BLDG.

TOLEDO, OHIO JACKSONVILLE, FLA.

CHICAGO, ILL.

MUNICIPAL BONDS

DISTRICT

CORRESPONDENCE INVITED FROM OFFICIALS & CONTRACTORS

We Buy Bonds and invite inquiries from municipalities and contractors

We deal in city, county, district, school, road, lighting, water works and other municipal issues.

A. C. ALLYN & CO.

BLACK & COMPANY

CERTIFIED PUBLIC ACCOUNTANTS

OFFICES:

Suite 1208 GARRETT BUILDING -

BALTIMORE, MD-HAGERSTOWN, MD.

WE BUY MUNICIPAL BONDS

We are interested in the purchase of Southern Municipals including road, school, county, drainage and levee bonds.

M. W. ELKINS & CO.

Southern Trust Bldg.

Little Rock, Ark.

NOTICE TO CONTRACTORS

We want to buy bonds issued by cities, towns counties, school, road or drainage districts that you may be able to take in exchange for work. Address us at our nearest office.

W. L. SLAYTON & CO.

New Orleans, La. Toledo, Ohio Tampa, Fla. Chicago, III. Glasgow, Mont.

ENTIRE BOND ISSUES OF SUCCESSFUL INDUSTRIALS PURCHASED

Offerings Invited

- \$21,000,000

Established 1884

Mercantile Trust and Deposit Co.

OF BALTIMORE

A. H. S. POST, President. F. G. BOYCE, JR., Vice-President.



UNION ARCADE BUILDING

VIIIM

PITTSBURGH, U.S.A

ye

fee foot the program of the grow and corn ucts 192 upo T all tion

Diversification of Crops Brings Prosperity to the Southern Farmer.

By W. C. McClure, Demopolis, Ala.

Cotton is again king but this time, let us hope, a sensible and just king-one who does not demand that he should occupy more acreage than he has a right to expect, if those who work for him and work to make him are to be fed from home-grown products rather than "store bought." This doctrine is an old story, but it is the truth and a truth that should never be crushed.

No more important question of economics confronts the South than the problem of whether the price of the staple and the conditions before us will cause fence corners to be planted to cotton in 1923 to the detriment of all important feed and food crops.

Why is the price of cotton now profitable? Because a necessity forced this crop to be made under Herculean effort and with strict economy, much of this year's cotton being made on a ration little better than cornbread, collards and coon. Why is cotton paying debts again and putting money in circulation? Because it is being sold by thousands who need the money, and the price holds around the level of 20 cents because the world faces an almost unprecedented shortage of cotton and there is nothing to take its place.

The Southern cotton farmer in shaping his plans for the year 1922 realized that if he did not himself produce food and feed crops the chances were he would not be able to buy these food products another year except for cash. Having no cash then he was forced to avoid such desperate chances and to protect himself by raising more varied crops.

Regardless of the means and processes by which the cotton grower has learned a most valuable lesson, the fact is that good times are again with us. The situation is a triumph and a victory-made all the more secure by breastworks of corn and hay, potatoes, molasses and meat and other products with which to make another crop. And in the fall of 1921 the Southern cotton farmer was either in poverty or upon the verge.

The world badly needs and will absorb at a good price all the cotton the South can grow under boll weevil conditions, after the South shall have fed its farming people and their live stock. The word "surplus" is a very important

word with successful bankers and other business men. Their policy calls for the creation of a surplus account with which to meet rainy days and unusual demands. No farmer who grows cotton is a success who fails to make similar provision. And the year 1922 has shown that a surplus of food and feed crops raised on Southern farms in the cotton belt is close to, if not entirely, equivalent to what is known in business circles as "Surplus and Undivided Profits."

The cotton farmer has probably learned more of real value and had a more beneficial experience within the last two years than in the ten years previous. Let us all hope he will not forget and let us assist him to remember.

Exempts Industries from Taxation.

PHIL J. REILLY, Publicity Director, Opelousas Trade Extension Bureau, Opelousas, La.

Your splendid trade paper can be of service to Opelousas, the parish seat of St. Landry parish, by announcing that this city exempts industries from taxation for five years. We have already interested two rice mills and are working on a cotton mill, as well as a big steam laundry.

We are having a cotton carnival to boost the fact that this season has been a banner one in the fleecy staple, as well as cane, sugar and rice.

Opelousas has just finished erecting a new public school, costing more than \$125,000, including furnishings.

We certainly believe in your first page editorial, which recently urged everybody to be a "Bull on America." city and parish are in fine shape and every resident is busy.

Separation of Wax from Distillates.

L. D. Wyant, chemical engineer, of the Bureau of Mines experiment station at Bartlesville, Okla, is continuing the study of methods of separating wax from Mid-Continent distillates. This is a part of a broader investigation to determine the most efficient methods of preparing lubricating oils from Mid-Continent crudes. Data are being collected on the methods now in use for separating wax from distillates and a careful study will be made to determine the nature of the wax that is not removed by pressing. The experimental refinery at the Bartlesville station has been enlarged and will be used for the preparation of wax distillates and lubricating oils from different Mid-Continent crudes.

PROPOSALS BOND ISSUES BUILDINGS PAVING **GOOD ROADS**

Bids close December 2, 1922. But close December 2, 1922.

PROPOSALS FOR MACHINERY FOR HYDRAULIC GRADER. — Office, Mississippi River Commission, 1st and 2nd Districts, Cutombouse, Memphis, Tenn.—Sealed proposals will be received here until 11 a. m., December 2, 1922, and then opened, for furnishing turbines, pumps, feed-water heater, boiler-feed pumps, and electric-light pant. Further information on application.

Bids close December 2, 1922.

-

PROPOSALS FOR STEEL BARGES.— Office Mississippi River Commission, 1st and 2nd Districts, Custombouse, Memphis, Tenn.— Scaled proposals will be received here until 11 a. m., December 2, 1922, and then opened, for furnishing six steel barges. Further information on application.

Bids close December 2, 1922

PROPOSALS FOR BOILERS. — Office, Mississippi River Commission. 1st and 2nd Diarricts, Memphis, Tenn.—Sealed proposals will be received here until 11 a. m., December 2, 1922, and then opened, for furnish-may be compared for the proposal of the commission of the com

RATE: 35 cents per line per insertion, PUBLICATION DAY: Thursday. FORMS CLOSE 4 P. M., Monday. DAY LETTER: When too late to send copy by mail to reach us by 4 P. M. Monday, forward by day letter. THE DAILY BULLETIN OF THE MANUFACTURERS RECORD: Published every business day; gives information about the industrial, commercial and financial activities of the South and Southwest. The Daily Bulletin can be used to advantage when copy cannot reach us in time for publication in the Manufacturers Record before bids are to be opened, or when daily publications are necessary to meet legal requirements.

requirements.

The same rate applies—35 cents per line per insertion.

Bids close November 20, 1922.

U. S. ENGINEER OFFICE, HUNTING-TON. W. VA., October 20, 1922.—Sealed proposals will be received here until 11 a. m., Eastern time). November 20, 1922, and then opened for furnishing and deliver-ing horses and props for Ohio River Dam No. 32. Further information on applica-tion.

Bids close November 27, 1922.

U. S. Engineer Office, Jacksonville, Fla.
—Sealed proposals will be received here
until 12 M., November 27, 1922. and then
opened, for dredging in Key West Harbor,
Fla. Further information on application.

Bids close December 1, 1922.

Proposal for Steel Barge—U. S. Engineer office, Montgomery, Ala. Sealed proposals will be received here until 11 A. M., December 1, 1922, and then opened, for one 80-ft.x26-ft.x5-ft. steel barge. Further information on application.

Bids close November 24, 1922.

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., October 23, 1922.—SEALED PROPOSALS will be opened in this office at 3 P. M., November 24, 1922, for contruction of the United States Post Office at Chandler, Okla. Drawings and specifications may be obtained from the Custodian of the site at Chandler, Okla., or at this office, in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect.

Bids close November 16, 1922

Bidg close November 16, 1922.

TREASURY DEPARTMENT, Office of the Supervising Architect. Washington. D. C. October 16, 1922.—SEALED PROPOSALS will be opened in this office at 3 p. m., November 16, 1922, for construction of the United States Post Office at Shawnee, Okla. Drawings and specifications may be obtained from the Custodian of the site at Shawnee, Okla., or at this office in the discretion of the Supervising Architect. Jas. A. Wetmore, Acting Supervising Architect.

Bids close November 21, 1922.

Bids close November 21, 1922.

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., October 28, 1922. SEALED PROPOSALS will be opened in this office at 3 P. M., November 21, 1922, for Extension of Roadway at the U. S. Public Health Service-Hospital ht Norfolk, Va. Drawings and specifications may be obtained from the Superintendent of Construction at the sic, or at this office in the discretion of the Supervising Architect. Jus. A. Wetmore, Acting Supervising Architect.

Bids close November 25, 1922.

\$65,000 6% Sewerage Bonds

Clover, S. C.

Clover, S. C.

The Town of Clover asks for bids on \$65,000 Sewerage Bonds, six per cent, annually, maturing 20-40 years. Bids will be received up until noon, November 25, 1922. All bids must be filed with V. Q. Hambright, Clerk of the Council, at Clover, S. C., on prescribed forms, on or before that date and hour. For information and form of bids, address Jno. R. Hart, Attorney, York, S. C. The right to reject any or all bids is reserved.

V. Q. HAMBRIGHT, Clerk of Council.

Bids close November 8, 1922.

Drainage Improvements

Statesville, N. C., October 21, 1922.

Sealed proposals for the construction of drainage improvements in Iredell County, Upper Third Creek Drainage District No. 1, will be received by the Board of Commissioners up to 12 o'clock, the 8th day of November, 1922, at the Court House, Statesville, N. C. The work to be done consists of about 8 miles of ditch containing approximately 137,314.8 cubic yards of dirt, and approximately 1000 cubic yards of dirt, and approximately 1000 cubic yards of dirt, and approximately 1000 cubic yards of fire, and approximately 1000 cubic yards of dirt, and approximately 1000 cubic yards of the first of January, 1923, if possible. A certified check in the sum of \$500.00, payable to the Board of Commissioners must accompany each bid. The Board reserves the right to reject any and all bids. Plans and specifications may be seen at the office of the Board in Statesville, N. C., or at the office of W. D. Alexander, Engineer, Charlotte, N. C.

J. H. HARRIS, Chairman L. F. ERVIN, Secretary.

Bids close November 14, 1922.

Road Improvements

OFFICE OF STATE ROAD DEPART-MENT.

Tallahassee, Fla. October 26, 1922.

October 28, 1922.

Sealed proposals will be received at this office up to 12 o'clock M., Tuesday, November 14, 1922, far constructing or improving a section of Road No. 1, between Lake City and Welborn in Columbia and Suwannee Counties.

The length of the road to be constructed or improved is approximately 11.6 miles and alternate proposals are desired on the following types of paving:

2½-in. Penetration Macadam on 6-in. Rock Base.
6-in., 8-in., 6-in. Plain Concrete Surface.

Rock Base.
6-in., 8-in., 6-in. Plain Concrete Surface.
2-in. Bitenninous Concrete (Topeka Type) with no binder course on 6-in. Rock Base.
11/2-in. Sheet Asphalt with 1-in. Binder Course on 6-in. Rock Base.
A certified check. or a bidder's bond executed on the attached form in the sum of \$12,000, and made payable to the Chairman of the State Road Department must accompany each proposal.
Plans and specifications are on file and may be examined at this office and at the Office of the Division Engineer, Lake City, Fla., and may be secured on application to this office for the sum of Three (\$3.00) Dollars.

right is reserved to reject any and all bids.
WM. F. COCKE,
State Highway Engineer.

H. B. PHILIPS, eer. Chairman.

Bids close November 14, 1922.

State Road Construction

Charleston, W. Va.

Charleston, W. Va.

Sealed proposals will be received by the State Road Commission of West Virginia at its offices in Charleston, W. Va., until 10 o'clock A. M., on the 14th day of November, 1922, and said proposals will be opened and read immediately thereafter at the Kanawha County Court House. Charleston, W. Va., for the construction of the following sections of State Road:

Project 3151—Boone County—4 miles of the Ranage-Madison Road for grading and draining. Certified check for \$2400.

Project 3152—Boone County—17 miles of the Racine-Peytona Road for grading and draining. Certified check for \$1390.

Project 123—Raleigh County—4.2 miles of the Shady Springs-Flat Top Road, for grading, draining and paving with Bituminous Macadam. Certified check for \$7600.

Project 3051—Pocahontas County—4.23 miles of the Buckeye-Millpoint Road for grading and draining. Certified check for \$7600.

Project 3051—Pocahontas County—4.23 miles of the Buckeye-Millpoint Road for grading and draining. Certified check for \$7600.

Project 3047 — Nicholas County — 5.7 miles of the Summersville-Gilboa Road for grading and draining. Certified check for \$2500.

grading and draining. Certified check for \$2500.

Project 3054 — Summers County — 4.0 mlies. End Project 1067 to the Raleigh County Line, for grading and draining. Certified check for \$2600.

Project 3170—Clay County—4.6 miles of the Maysel towards Kings Shoals Road for grading and draining. Certified check for \$3200.

Project 3057—Mason County—9.0 miles of the Pt. Pleasant-Clifton Road for grading, draining and gravel surfacing. Certified check for \$3500.

Project 3138—Mason County—5.5 miles of the Henderson-Couch Road for grading, draining and gravel surfacing. Certified check for \$3500.

Project 3060—Mercer County — 0.6 miles of the Simmons-Freeman Road for grading, draining and paving with Bituminous Macadam. Certified check for \$600.

Project 3061—Wayne County—9.0 miles of the Echo-Fleming Road for grading and draining. Certified check for \$600.

Project 3062—Wyoming County—3.63 miles of the Iroquois-Amigo Road for grading and draining. Certified check for \$3500.

Project 3133—Releigh County—0.54 miles of the Iroquois-Amigo Road for grading and draining. Certified check for \$3500.

Project 3133—Releigh County—0.54 miles of the Iroquois-Amigo Road for grading and draining. Certified check for \$3500.

(Note—Projects, 3062 and 3133 will be

\$560. (Note-

ing and draining. Certified check for \$560.

(Note—Projects 3062 and 3133 will be let in one contract.)

Project 3076-B—Calhoun County—11.0

miles of the Grantsville-Arnoldsburg Road. for grading and draining. Certified check for \$3800.

Project 3067—Wirt County—12.0 miles of the Elizabeth-Spencer Road for grading and draining. Certified check for \$3600.

Project 3021-B—Webster County—11.0 miles Pt. Mountain Randolph County Line Road for grading and draining. Certified check for \$5000.

Project 3111—Gilmer County—10.0 miles of the Glenville-Normantown Road for grading and draining. Certified check for \$5000.

ing and draining.

Project 3154—Upshur County—Co miles of the Buckhannon-Randolph Read for grad-ing and draining. Certified check for \$2500.

Project 3149—Grant County—2.4 miles of the Petersburg-Hardy County Line Road for grading, drainage and paving with Waterbound Macadam. Certified check for

**S2000. Project 3012—Hampshire County—8.6 miles of the Junction to Hardy County Line Road for grading and draining. Certified check for \$5000.

Project 3107—Mineral County—7.6 miles of the Ridgeley-Alaska Road for grading. draining and gravel surfacing. Certified check for \$3000.

Project 3028—Berkeley County—4.24 miles of the Martinsburg-Hedgesville Road for grading. draining and paving with Waferbound Macadam. Certified check for \$3500.

\$3500.

Proposals will be received only upon State Standard forms in accordance with plans, specifications and estimates of quantities therefor, which standard forms, plans, specifications and estimates my be obtained from the office of the Division Engineer in whose territory the proposed construction is located, or from the office of the State Road Commission at Charleston, W.

Each proposal must be accompanied by certified check for the amount noted. The right is reserved to reject any and all proposals.

STATE ROAD COMMISSION OF W. VA. E. B. CARSKADON,

Secretary.

Bids close November 17, 1922.

160 Miles of Road Construction

Tampa, Fla., October 13, 1922.

Tampa, Fla., October 13, 1922.

Sealed proposals will be received by the Board of County, Florida, until 11:00 A.M., on November 17, 1922, for the construction of approximately one hundred and sixty (160) miles of nine (9) and fifteen (15) foot roads, to be paved with either brick, asphalt block, sheet asphalt, asphaltic concrete, eement concrete or bituminous macadam, as set forth in the specifications.

Specifications may be obtained on application from the Clerk of the Circuit Court of Hillsborough County, at Tampa, Florida. A deposit of Five (\$5.00) Dollars will be required for specifications.

A certified check or bidder's bond executed by a reputable bonding company authorized to do business in the State of Florida, in the sum of Five (5%) per cent of the bid must be attached up to a bid of Five Hundred Thousand (\$500,000) Dollars. Any contractor bidding on more than amount of work up to and including the total project may make a check or bidder's bond for only Twenty Five Thousand (\$25.00) Dollars, any contractor bidding on more than amount of work up to and including the total project may make a check or bidder's bond for only Twenty Five Thousand (\$25.00) Dollars, payable to Charles T. Friend, Chairman of the Board of County Commissioners. A bond must be submitted with each proposal.

Bidders may submit proposals on each road separately or on the combined project as a whole, it being understood, however, that the Board reserves the right to award this work as they deem best, either separately or as a whole.

The right is reserved to select the type of curbing and paving for each road and to reject any or all bids.

Bids will also be received for road building materials; such materials to conform to the requirements as set forth in the construction specifications. A certified cheek or bidder's bond must accompany each proposal for materials, payable to Charles T. Friend. Chairman, Board of County Commissioners, for the sum of One Thousand (\$1000) Dollars. The right is reserved to reject any and all bids

Bids close November 27, 1922.

Road Construction

Washington, N. C.

Washington, N. C.
Sealed proposals will be received by the
Beaufort County Road Commission at its
office in Washington. N. C., until 2.00
P. M., November 27., 1922, for the construction of two sections of road on the Chocowinity-Auroro Road. One section starting
at Chocowinity and extending 4.8 miles
towards Aurora; one section at Edwards
being 2 miles in length.
Bids are desired on asphalt and concrete
paving 18 feet wide.
The total estimated approximate quantities are:

paving 18 feet wide.
The total estimated approximate quantities are:
71,800 sq. yds. of sheet asphalt. asphalt concrete or concrete paving.
452 sq. yds. gravel or waterbound macadam paving.
34,895 cu. yds. excavation.
3 culverts, containing 54 cu. yds. concrete and 4250 lbs. steel.
2 bridges, containing 706 cu. yds. concrete: 69,240 lbs. steel and 3200 feet of piling.
210 ft. 18-in. pipe.
30 ft. 30-in. pipe.
150 ft. 15-in. pipe.
Proposals must be marked "Proposal for Chocowinity-Aurora Road."
All bids must be upon blank forms provided in the proposal, contract and specifications.

cations.

Each bid must be accompanied by a certified check for \$10,000, or satisfactory bidder's bond as evidence of good faith. Bidders bidding on any part of the work separately must accompany their bid by a certified check or satisfactory bidder's bond for an amount equal to 5% of the amount of their bid.

Plans and specifications will be on file at the office of the Commission, in Washington, N. C., and copies of the plans specifications, form of proposal, etc. will be mailed upon the applicant making a deposit of \$5.00, one-half of which will be returned upon the return of the plans in good condition as stated in the specifications.

The right is reserved to reject any or

right is reserved to reject any or

F. C. KUGLER. Chairman, J. D. BULLUCK, Secretary.

H. W. RANKIN.

Engineer.

Bids close November 23, 1922.

Hard Surface Street Paving

Scaled proposals for the construction of approximately 75,000 sq. yds. of hard surface street paving will be received at the office of the Commissioner of Public Works, Wilmington, N. C., until 11 A. M., on the 23rd day of November, 1922.

A certified check to the amount of 5½ is required with each bid and the right is reserved to reject any or all proposals.

Plans and specifications may be obtained from the Carolina Engineering Co., 412 Southern Bidg., Wilmington, N. C., G. H. Bishop, Consulting Engineer.

By order of the Board of Commissioners.

R. C. CANTWELL,

Commissioner of Public Works. Wilmington, N.

Water Works

Elkton, Va. is contemplating installing water system to cost \$75,000: will be glad to hear from any one interested.

C. W. McGuire, Prest.

Bids close November 21, 1922.

Water Works and Sewerage Systems

Systems

Covington, La.

All bids having been rejected on the above work, new proposals will be received until Tuesday, November 21, 1922, at 7.30 P. M., for furnishing and laying approximately 11 miles Water Lines, and 10 miles of Sanitary Sewers and Appurtenances. Specifications, form of proposal, contract and plans may be seen at the office of the Mayor of Covington, La., or will be mailed, upon application to the Engineers. The Kramer Engineering Company, Magnolia, Miss., upon a deposit of \$15.00 to insure their safe return.

The Council reserves the right to reject any and all bids, or to waive formalities, and to make any award which in their opinion is to the best interest of the Town of Covington.

ROBERT W. BADON, Mayor, L. A. PERREAND, Secretary.

THE KRAMER ENGINEERING CO., Consulting Engineers, Magnolia, Miss.

Consulting Engineers, Magnolia, Miss.

Bids close November 9, 1922. Water Works and Electric Light Systems

Systems

Utica, Miss.

Sealed proposals will be received by the Mayor and Board of Aldermen of the Town of Utica, Miss., at their regular meeting place until 11 o'clock A. M., November 9, 1922, for the following:

One Oil Engine, directly connected to Alternator, one belted Alternator, Switchboard, Pumps, Pole line material, 12,000 Gallon Oil Storage Tank. Concrete Foundations, Repairs to building, etc.

Proposals must be marked, "Proposals for Light and Water Works Improvements."

All bids must be upon blank forms provided in the specifications.

Each bid must be accompanied by a certified check (bidder's bond not acceptable) for five (5%) per cent of the amount bid, but not less than fifty (\$50.00) dollars, as evidences of good faith.

Plans and specifications will be on file at the office of the Engineers in New Orleans, La., copies of the specifications, form of proposal, etc., may be obtained from the Engineers, Swanson-McGraw, Inc., New Orleans, La., by depositing five (\$5,00) dollars, which amount will be refunded to hona fide bidders, or if specifications are returned to the Engineers before the date of letting. The right is reserved to reject any or

all bids.

R. F. COOK. Mayor,
R. V. CURRIE, Clerk.
SWANSON-McGRAW, INC.,
Engineers,
705 United Fruit Building,
New Orleans, La.
Bids close November 17, 1922.
Elevated Water Tank

Elevated Water Tank

Sealed proposals will be received by the
City of Fort Myers, Fla., up to Friday,
November, 10, at seven P. M., for one 50,000 gallon, one 75,000 gallon and one 100,000 gallon elevated water tank, standard
construction. one hundred and twenty feet
high to balcony, eight or ten-inch pipe
from ground to tank. One tank only
needed, size to be decided when bids opened.
Right reserved to reject any or all bids.

C. P. STALEY, City Manager.

Bids close December 4, 1922.

Notice to Architects and **Engineers**

Vicksburg, Miss.

Vicksburg, Miss.

Sealed proposals will be received at a meeting of the Mayor and Aldermen of the City of Vicksburg. Miss., to be held at the City Hall in said City, at 4 o'clock P. M. on Monday, December 4, 1922, for plans and specifications for the erection of two public school buildings.

All information and details of the proposed buildings and the number of pupils to be accommodated may be had upon application to S. S. Patterson, City Clerk of said City.

The City reserves the right to reject any and all bids that may be submitted.

J. J. Hayes, Mayor.

Bids close November 15, 1922.

Fire Hose

Johnson City, Tenn.

Sealed proposals will be received until 9 o'clock A. M., November 15, 1922, at the Municipal Building, Johnson City, Tenn., by P. F. McDonald, Commissioner of Finance, for furnishing 1000 ft. Standard by P. F. McDonald, Commissioner of Fi-nance, for furnishing 1000 ft. Standard Fire Hose.

The right is reserved to reject any or all bids.

P. F. McDONALD, Commissioner of Finance.

Bids close November 21, 1922.

Repainting Bridge

Pine Bluff, Ark.

Pine Bluff, Ark.

Sealed proposals for repainting Free
Bridge across Arkansas River near Pine
Bluff, Ark., will be received by Commissioners until 3 P. M., Tuesday, November
21, 1922, at the office of Parkes Engineering Company, Citizens Bank Building,
Pine Bluff, Ark..

Bridge is 1600 feet long and contains
approximately 3200 tons of steel.

For further information address Parkes
Engineering Company.

(Signed) W. N. TRULOCK.

C. H. TRIPLETT, JR.,

H. C. McGAUGHEY.

Commissioners.



CLASSIFIED OPPORTUNITIES



Wealth in virgin coal fields in Northern Alabama, near Tennessee River. Ready to mine with electric equipment; entries driven. Superior domestic, steam and gas coal; unsurpassed in the South as an export coal. Iron ore, fire-clay, cement rock and limestone in vast quantities. Five million feet of Poplar. Oak and Hickory timber on property. Industrial railroad connecting with Southern Ry, system. Soil overlying 16,000 acres, ideal for cattle, sheep and Angora goats and for fruit raising. For full particulars, price and terms, write F. D. Pierce, 1505 E. Genessee St., Syracuse, N. Y.

FOR SALE—84 acres. 50 acres nice timber; good hunting and fishing. Large stone bluff on C. & O. R. R. and State Highway. Analysis and sample of stone furnished. Postmaster, Irwin, Va.

FOR SALE—Arkansas Coal Property.
Two going mines, one steam and electrically equipped, with production of 350 to 400 tons daily. Can be put to 700 tons with present equipment. 200 acres favorable lease, 100 acres fee. 45-inch seam with dirt band for machine mining. Analysis 14640 B. T. U. Address No. 6089 care Manufacturers Record, Baltimore, Md.

FOR SALE—Going coal mines—coal, oil and gas lands—timber tracts. Reports made on same anywhere. E. H. Morris, Box 518, Charleston, W. Va.

MANGANESE PROPERTY

MANGANESE PROPERTY

If interested in developing or purchasing such property, address J. E. Hill, 1212-12th Court North, Birmingham, Ala.

RATES AND CONDITIONS

Rate 30 cents per line per insertion. Minimum space accepted, four lines. In estimating the cost, allow seven words of ordinary length to a line. When the advertisement contains a number of long words, proper ellowance should be made. Terms: Invariably cash with order: check, postoffice or express order or stamps accepted. No display type used. Questionable or undesirable advertisements will not be accepted. The assistance of our readers in excluding undesirable advertisements in equested. We reserve the right to refuse any advertisement. No patent medicine, oil or mining stock advertisements accepted. Rate for special contracts covering space used as desired within one year as follows: 100 lines. 25c. per line; 300 lines, 26c. per line; 300 lines, 26c. per line; 200 lines.

TIMBER

Hardwood timber on 17,000 acres of land from which larger mill logs are being re-moved. A good proposition for handle or slack barrel factory. Reasonable arrange-ments may be made by reaponsible pur-chasers. Write care P. O. Box 609. Ope-louses 18

YELLOW FIR TIMBER-FOR SALE

300,000,000 feet yellow fir, key to a very much larger tract. The timber is as fine as there is on the coast and in a solid body, standing on 4000 acres. No deep canyonslong, gradual slopes. Location: Lane County, Oregon. \$1.50 per M. Address G. THEDEN, 1034 Security Bldg., Minneapolis, Minnesota.

TIMBER LAND

3000 acres of virgin hardwood timber, containing 12,000,000 feet, located in Sevier County, Tennessee; easy logging, \$16 per acre; a rare opportunity that will bear the closest inspection. Moore Land Company, Knoxville, Tenn.

WINTER HOME

PALM BEACH

PALM BEACH

For the discriminating winter resident, a private estate of five acres directly on beautiful Lake Worth, with 180 tropical fruit trees, all bearing. Two very exclusive residences, one of 16 and one of 12 rooms, not including extraordinary large halls and enclosed porches. Furniture and decorations all new and in the most exclusive taste. Also 3 car garage and 7 servants' rooms and private boat dock and landing pergola. For lease this season. Address owner, Box 582, Palm Beach, Fla.

FARM, FRUIT, AND TRUCK LANDS

ALABAMA

WESTWYN PLANTATION

Near Selma, In Dallas County., Alabama.
The prettiest, most up-to-date place in the
county. Write for particulars and pictures.
Eight Hundred acres.
Dallas County Real Estate Co.,
Selma, Ala.

FLORIDA

Rich, deep muck Everglade land, 10 acres to 25,000 acres, near Pennsylvania Sugar Company's \$1,250,000 sugar mill, north and west of Miami, Fla.—Price \$15,00 per acre up. Stewart, Hollopeter & McCune, Real-tors, 136 N. E. 1st St., Miami, Fla.

FARM, FRUIT, AND TRUCK LANDS

FLORIDA

FLORIDA—Come to Florida, "where its summertime in the wintertime, and pleasant all the year round;" no coal bills; no wintry ice or snow—Just sunshine, and health and opportunity. Send for booklet, "Largest Orange Tree in the World," and list of homes, groves and farms. Tampa-West Coast Realty Co. (Inc.) opposite Post Office" Since before the War." Tampa, Fa.

SOUTH CAROLINA

Truck farms that pay dividends annually can be bought at reasonable prices here. Vegetables are shipped eight mouths in the year. Three and four crops are grown on the same land annually. Excellent climate and health. Plenty of labor; strikes unknown. Well organized association that sells all farm products. For particulars write. Lake Realty Company, Beaufort, S.C.

TEXAS

TEXAS

20,000 acres level black land, all tillable, three miles from station on railroad, adjoining land nearly all in cultivation, abundant artesian water 600 to 800 feet, worth \$40 per acre in 40-acre tracts, form a company and re-sell, our price \$15 per acre net. RANCHES; 9600 acres, improved Duval Co., \$9.00 per acre. 10,200 acres Live Oak Co., three houses and barns, \$12.00 41,000 acres on Brooks and Hadalo line, near King of Trails Highway, \$7.00 per acre. 100.000 acres Terrell Co., lots of water, several houses, \$6.65 per acre, will divide. Write for full description. GRUBBS REALTY CO., CORPUS CHRISTI, TEX.

BUSINESS OPPORTUNITIES

Owners of subdivisions, farm or acreage anywhere in the United States. I organize sales forces and turn property into quick cash. What have you to sell now or for Spring.

Eff Perry Butto seil now or

Eff Perry Below Court, Atlantic City, N. J.

Selling this winter in Miami and St. Petersberg, Fla.

WANTED—Party with ten thousand (\$10,000) dollars or more manufacturing proposition. An Anti-Teredo Wood Preser-vation. P. O. Box 624, Jacksonville, Fla.

Exceptional opportunity for party desiring to become established in drug business in Orlando, Fla. Must be prepared to take half interest in the business and assume management. Must be experienced druggist and come well recommended. W. M. Markey, 136 S. Orange Ave., Orlando, Fla.

If interested in the
BEST SECTION OF THE SOUTH
If you want a Cotton Mill,
or Southern Mill Stocks
or Investment in Central Real Estare
Large Suburban Development property
or a Manufacturing Site
Address
F. C. ABBOTT & COMPANY
Trust Building, Charlotte, N. 4

I SPECIALIZE in industrial, warehouse and business sites at and adjacent to Wash ington, D. C.

M. B. HARLOW,
Harlow Building,
Alexandria, Va.

Colorado Building Washington, D. C.

Interest open in Marine Transportation and Commission Company. Business enough from South to earn \$300,000 Net Annually, 25% on capital invested. Alfred S. Perry, Perry Building. Fairfield, Conn.

Wanted a REAL MANUFACTURER—to co-operate with me in building and marketing the best design of TRACTOR ever offered the Southern farmer. Territory unlimited. Address No. 6084 care Manufacturers Record, Baltimore, Md.

MIAMI, FLORIDA

The fastest growing city in the U. S. A.!
Four million acres richest land. Building
million dollar sugar refinery. Excellent
investment opportunities, big profits and
safety here.
Ask for information and literature.
DAVENPORT & RICH. REALTORS
MIAMI, FLORIDA.

Contractor with good financial connection will assist to promote and build industrial or railroad proposition of unnuestionable merit. Address No. 6088 care Manufacturers Record, Baltimore, Md.

FINANCIAL

Prosperity of banking corporations built upon the ruin of the people. Read T. Cushing Daniel's book, "The Betrayal of the People" by Congress in passing the fraudulent gold basis Federal Reserve Act, and defeat any Representative who now tries to defend this financial scheme to rob the people. Popular edition. 25 cents.

The Monetary Educational Bureau 1416 F St., Washington, D. C.

INDUSTRIAL FINANCING—Will finance going corporations, and organize or reorganize, or sell outright large properties, mills, timber and mineral lands, etc. Will deal only direct with owner and only on my own terms. If you have real business and mean business and want to try something entirely different from usual brokerage methods, write me the facts. If I undertake it, I will see it through, quietly, but surely. No small transactions. No speculation. Address Bruce Craven, Trinity, N. C.

INDUSTRIAL
FINANCING
Manufacturing Companies that are hampered by lack of capital, but have good possibilities with equipment and product, may be refinanced by experienced manufacturer in metal lines who has reorganized many manufacturing companies successfully. Broad constructive aid given to Finance, Product, Sales and Manufacturing. Will not attempt project unless definite results probable. No temporary financing considered. Address No. 6087 care Manufacturers Record, Baltimore, Md.

INDUSTRIES WANTED

BUSINESS OPPORTUNITY
Elkton, Va., a beautiful town of 1200
to 1500 people. Located on state highway
and Lee highway to come into the town,
makes it an ideal place for creamery, silk
mill or any other manufacturing plant
desiring good location. Any one interested
call on or write
C. W. McGUIRE, Prest.

CENTRAL NEW YORK
Railroad company offers several large
factory buildings together with nine duelling houses for sale or lease. Suitable for
textile, shoe, automobile, farm implement
or other similar industries. Cheap electric power. Address General Manager,
SOUTHERN NEW YORK POWER &
RAILWAY CORPORATION, Oneonta, N. Y.

FACTORY SITES

FREE FACTORY SITES.
FINANCIAL, ASSISTANCE
AND OTHER ATTRACTIVE INDUCEMENTS
J. D. Stone & Company, Inc.
No. 4 Arcade Building,
Norfolk, Va.

BALTIMORE

FACTORY

SITES

William Martien & Company. 1413 Lexington Bldg..

Paltimore, Md.

NEW ORLEANS HARBOR Ideal Factory Site. 192 foot river frontage water rights. Two railroads.

A. B. Graves Realty Co., 409 Marine Bank Building, New Orleans, La.

INDUSTRIAL PLANTS

FOR SALE OR LEASE—Manufacturing site: 25 acres, Elkridge, Md.; on Patapsco River; about 180 H.P. developed; good buildings; partly equipped; main line B. & O. Address R. W. Kime, Salem, Va.

PATENT ATTORNEYS

INVENTORS—Send sketch or model of your invention, for opinion concerning patentable nature, and exact cost of applying for patent. Book. "How to Obtain a Patent" sent free, Gives information on patent procedure and tells what every inventor should know. Established 25 years. Chandlee & Chandlee, 412 7th St. N.W. Washington. D. C.

PATENTS—Booklet free. Highest references. Best results. Promptness assured. Watson E. Coleman, Patent Lawyer, 624 PSt., Washington. D. C.

PATENTS, TRADE-MARKS AND COPY.
RIGHTS—Write for our Free Illustrated Guide Book and EVIDENCE OF CONCEPTION BLANK, Send model or sketch and description of your invention for our pointon of its patentable nature free.
Highest references, Prompt service. Reasonable terms. Victor J. Evans & Co., 712 9tb St Washington D C

LUMBER AND BUILDING MATERIAL

FOR SALE

1 Car 5/2 x3-21/6" Face B. & Btr. Celling.
1/4 Car 5/2 x3-21/6" Face No. 1 Com. Celling.
1/4 Cars 5/2 x3-21/6" Face No. 2 Com. Celling.
2 Cars 32" No. 1 Kiln Dried Plaster Lath.
4 Cars 32" No. 2 Kiln Dried Plaster Lath.
Ingram-Day Lumber Co., Lyman, Miss.

MEN WANTED

WANTED—By a sash and door jobbing house with manufacturing connection, a high-grade salesman for North Carolina and Virginia. Address 6085 care Manufacturers Record, Baltimore, Md.

Energetic salesman with engineering knowledge to represent high-class tank man-ufacturer in southern territory. Address reply, stating experience, age, salary ex-pected and reference, to No. 6077. care Manufacturers Record, Baltimore, Md.

A LEADING ORGANIZATION desiring to fill an important position. for obvious ethical and other reasons, cannot invite directly the candidace of any particular man Similarly, no well-connected man will eviloit personally his own qualifications, no matter how receptive he may be to overtures. The undersigned has been retained by a national clientele for many years, as a medium for negotiating preliminaries in such cases. Your permission to send booklet discussing this problem and describing the service, will in no degree obligate or compromise you. Strictly confidential, R. W. Bixby Inc., 303 Lockwood Bidg., Buffalo, N. V.

Wanted Salesmen — Refrigerating salesmen to work in exclusive territory on percentage basis. Must be able to furnish good reference, and would prefer financing own expense account. De Loach Quick Ice Machine Co., Columbia, S. C.

WANTED—Competent Brick Manufac-turer. To take interest in and manage Brick Plant in Muscle Shoals Section. Ala-bama. Reply to John R. Morrison, No. 6 Talbot Road, Baltimore, Md.

Stock Salesmen Wanted—To handle a large issue of industrial stock, on commission basis. A first-class proposition. Giver references and territory desired to work.

Address N. A. Gilbert.

Box 27, Ft. Myers, Fla.

Qualified men—Technical, Commercial or Manufacturing—seeking new positions find our effective and confidential service extremely satisfactory. Our Mr. H. H. Harrison can negotiate a sultable connection for you as he has done for thousands of others since 1909. Inquiries invited; confidences respected. others since 1999. Indultes invited. Confidences respected.

THE NATIONAL BUSINESS BOURSE, Inc. Confidential Negotiators
Association Building. Chicago.

MACHINERY AND SUPPLIES

Valves, pipe fittings, all kinds and sizes; new stock. Can positively save you money on quantity purchases. What are your re-quirements? Pratt Thompson, 220 E. Lex-ington St., Baltimore, Md.



SPECIAL ADVERTISEMENTS OF GENERAL INTEREST

BUSINESS OPPORTUNITY

FOR SALE

Controlling interest in a well established Saw Mill Machinery Contractors Equipment and Oil Field Boiler Business. Located in one of the best sections of the South.

Sales over \$20,000.00 first part of month. Purchaser must understand the business and be capable of taking charge; must have \$25,000 cash. Give details as to ability, etc., first letter. All communications held strictly confidential.

Address A-274 Manufacturers Record BALTIMORE MARYLAND



A SPLENDIDLY MILL CONSTRUCTED BRICK BUILDING

three stories high, 280 ft. long x 65 ft. wide. Situated in a live Southern Virginia town of 6,000 population and located on two railroads; Southern and Norfolk & Western. Sidings run parallel, building full length on both sides. Will sell at a great bargain. Terms, liberal.

Address A-270 care of Manufacturers Record, Balto., Md.

Owners of Subdivisions Farm or Acreage. Anywhere in the United States.

I organize Sales Forces and turn property into quick cash. What have you to sell now or for spring?

> Eff Perry Butler, Land Developer Belair Court, Atlantic City, N. J.

Selling this winter in Miami and St. Petersburg, Fla.

Name, Contracts and Equipment For Sale of Corporation doing Bridge Work

Have \$200,000.00 worth of contracts on hands, well equipped and in good location, would like to sell name, contracts and equipment.

Correspondence solicited from parties who have the money and are interested in this line of work.

Address A272, care Manufacturers Record BALTIMORE, MARYLAND

MANUFACTURERS OF

FACE BRICK SEWER PIPE HOLLOW TILE MINE CARS MINE TOOLS MINE EQUIPMENT

FROSTBURG, MARYLAND

Has an inexhaustible supply of plastic and flint clays and possesses an advantage of from \$1 to \$4 per ton in freight rates to Eastern markets over the brick and pipe producing centers of Ohio.

Located in the heart of one of the largest coal fields in this country, Frostburg is surrounded by a tremendous market for mine equipment of all kinds.

Being a mining center, coal for fuel is abundant, cheap and always obtainable. Electric power at reasonable rates.

Abundant water and low taxes.

AN EXCELLENT LOCATION FOR INDUSTRIES OF VARIOUS TYPES.

Detailed information on request. All inquiries held confidential.

Address T. C. CARRINGTON FROSTBURG, MD.

THE TEXAS AND PACIFIC RAILWAY

SERVES

Dallas Fort Worth El Paso

> Abilene Cisco

Sweetwater Texarkana

IN

TEXAS

New Orleans Shreveport

Alexandria

IN

LOUISIANA

Splendid opportunities for manufacture and distribution.

Address

Frank J. Burke

Land & Industrial Commissioner Dallas, Texas



Plant Sites For Sale in the Birmingham District

HYDRO-ELECTRIC POWER **EQUABLE CLIMATE**

Sizes to suit all needs on all rail-roads. Supplies of coal, coke, from and steel within trucking distance.

Labor situation better than in other industrial centers. Hydro-electric power available. Equable climate, Address

BIRMINGHAM REALTY CO.

Owners .
BIRMINGHAM, ALA.

Ma

For Sale

Hydro-Electric Plant-Bargain

Located in Georgia on two Trunk line Baliroads, Developing 300 H.P. complete with generators transmission lines, etc. Present income from sale of power about \$6000.00. By raising Dam 12 feet can be made to realize \$15,000.00 per year. Offered for quick sale at \$35,000.00 half cash balance in one to three years. Excellent location for cotton mill.

T. D. Hoskins, Boaz, Ala.

Industrial Location

I will furnish two-story Building 30x60, Railroad Siding and Electric Current alongside, for an interest in a reliable manufacturing proposition. Location near Trenton, N. J.

CHARLES T. EASTBURN

803 Broad St. Bank Building

Trenton, N. J.



Freight Cars

We are in the market for allsteel or steel underframe freight cars of not less than 40 ton capacity.

> E. H. WILSON & COMPANY COMMERCIAL TRUST BUILDING PHILABELPHIA

WANTED

To buy for cash one Oram Thin Hoop Driving Machine for 50 gallon oil barrels. State location, condition and lowest price in first letter,

Address A-273 Care Manufacturers Record Baltimore, Md.

WANTED

HIGH PRESSURE PRESS 2000 to 12,000 TON CAPACITY—PLATENS 36" to 46".

ALUMINUM WHEEL CO., of America 130 Union Ave., Elizabeth, N. J.

WANTED

PIPE THREADING MACHINE

6" or 8" capacity Motor Driven

McARDLE & WALSH, Inc. KEY HIGHWAY, BALTIMORE

WANTED TO PURCHASE FOR CASH

500 KW and 1500 KW condensing steam turbine complete—125 to 150 pounds gauge—2300 volt—60 cycle—3 phase. Might consider capacity in one unit. Must be in first-class shape and cheap.

P. O. Box 853 Seattle, Wash.



MACHINERY

EQUIPMENT

SUPPLIES

BOILERS-250 H.P.- CROSS-DRUM WATER-TUBE

SATISFACTORY SERVICE ASSURED

UNITED STATES POWER EQUIPMENT CO. NOT INC.

122 SO. MICHIGAN AVE. CHICAGO, ILL.

ELECTRIC MOTORS

Generators & Motor Generator Sets Steam Engine and Turbine Sets (We buy and sell good used equipment)

J. L. HEMPHILL & CO., INC.

1118-1120 Clinton Street

Hoboken, N. J.

NEW MOTORS—Immediate Shipment

Quan.	H.P.	V.	R.P.M.	Туре	Make
3	25	220	850	K	R. & M.
1	40	220	1200	В	Fairbanks-Morse.
1	40	220	1200	H	Fairbanks-Morse.
1	40	440	900	H	Fairbanks-Morse.
1	50	440	900	H	Fairbanks-Morse.
1	50	220	1200	H	Fairbanks-Morse.
1	50	440	850	AN	Allis-Chalmers.
1	75	440	900	B	Fairbanks-Morse.
1	75	220	865	AN	Allis-Chalmers.
1	150	2200	600	0	Crocker-Wheeler

GEO. F. MOTTER'S SONS

Steam and Electrical Engineers YORK, PA.

BOILERS

- 2-72"x18' H.R.T. "Penna. Boiler Works". 1-60"x16' H.R.T. "Ames Iron Works".
- 2-50 H.P. Locomotive, "Erie City Iron Works", mounted on

Also a full line of new and second-hand Vertical Boilers.

L. F. SEYFERT'S SONS INC.

437 N. 3rd. St.

Philadelphia, Pa.

Your Reference Library Is Incomplete Without BLUE BOOK of SOUTHERN PROGRESS

A survey of Southern resources and development in agriculture, industry, commerce, and finance.

Single Copies 50c

MANUFACTURERS RECORD - -

Baltimore, Md.

1-

1-

900

M

FOR SALE AT REDUCED PRICES

1—461 H.P. Heine 180 lbs.
1—350 H.P. Heine 180 lbs.
2—203 H.P. Heine 150 lbs.
4—250 H.P. Casey Hedges 225 lbs.
2—200 H.P. H.R.T. 125 lbs. A.S.M.E.
1—160 H.P. H.R.T. 125 lbs. A.S.M.E.
1—60 H.P. Loco. Type 125 lbs.
1—35 H.P. Loco. Type 100 lbs.

Cars

18—4 yd. Western side dump, 38" gauge.
11—24 cu. ft. K. & J. steel, shaft mine, 18"
gauge.
8—8td. gauge flats, with air brakes, 55'
long.

long.
8—Interborough std. gauge open passenger, seating 96 people, air brakes.
16—Small box—std. gauge, suitable for contractors, tool cars, bunk, etc.
3—36" gauge industrial flat, small, iron tops.

tops.

Engines

Large assortment of steam engines, allde valve, automatic and Corliss, all sizes up to 500 H.P.

Farm Lighting Plants

PERFECTION Lighting and power plants 1½ K.W. gasoline—electric with storage batteries, operates 25-40 watt lights and small motors for domestic appliances and radio equipment. Regular price \$500.00. Our special bargain price, only \$275.00.

Generators

3—25 K.W., 115 Volt, direct current Gen, Elec. Co., direct connected to 50 H.P., 4 cylinder gasoline engine.

Hoisting Engines

6—7x12 dbl. cylinder, single drum, steam hoisting engines, reversible, drum 16" x24". 1—9x16 Mundy mine hoist, 50 H.P. re-versible, drum 48"x46".

Heaters (Feed Water)

All sizes, 50 to 800 H.P. practically new, tested and guaranteed.

Ice Machines

One ton steam or motor drive latest type practically new, complete with re-frigerating coils. Excellent cold storage plant for commissaries, saw mill plants, contractors, etc.

Lathes

Only a few left from large government surplus equipment, latest type, quick change gear, Le Blond and American 19" x8' bed.

Locomotives

A bargain for light switching, logging, grading, etc. 10 ton Baldwin, 4 wheel, saddle tank, 36" gauge.

Switches Fifteen complete sets of practically new standard gauge, R.R. switches, 60 lb. rail less than half price.

100 Tons-60 lb. relayers. 150 Tons-70 lb. relayers.

Tractors

Motors

1—36" Atlas storage battery for industrial plant work.
A splendid assortment of new and slightly used (guaranteed) motors—220-440 volt, A.C., 3 phase, 60 cycle, 5 to 30 H.P., G.E. and Westinghouse. Over 50 in stock.

Pumps Large assortment of steam and centrif-ugal, from the smallest to 2000 G.P.M. including a 1000 G.P.M. wheeler steam underwriters, all good as new at reduced

Over 500 new steel and Dodge cast split, also new Dodge hangers, shafting, etc., at reduced prices, also thousands of used pulleys and hangers.

5½ ton caterpillar tractors practically new, guaranteed and tested. Will pull 15 tons on trailers up 30 per cent grade. Especially adapted for grading, scarify-ing, logging, heavy hauling, etc.

MISCELLANEOUS

Our stock is so large and varied that we do not publish a complete inventory. Nor have we offered any items not actually in our stock at Richmond available for inspection and prompt shipment. Reservations may be made for inspection. In addition to articles mentioned we have a large assortment of electrical supplies, air compressors, belting, condensers, chain hoists, gasoline engines, fans, generators, power hammers, packing, rail, rock crushers, smoke stacks, saw mills, surfacing machines, tanks, iron pipe, wagons, wire rope, etc.

HACKLEY MORRISON COMPANY

Warerooms, shops and yards with trackage 21/2 acres, on Lewis Street

Phone Randolph 1123

RICHMOND, VA.

P. O. Box 1852

NEW AND SECOND HAND MACHINERY FOR SALE

2-259 H.P. Heine Safety Bollers with fixtures.

1-125 H.P. High Pressure Locomotive type Boller.
66 inch dis. 18 feet long over all, 199-2 inch flues 10 feet long. Fire box 4 ft. 10 in. wide by 5 ft. 0 in. long by 4 ft. 6 in. deep. 43 feet of 30 inch stack, all regular Catalogue Fittings. Good for 150 lb. pressure.

The above have been used but are in A No. 1

The above have been used but site in a condition.

—80 H.P. Locomotive type Boller, 50 inch dia., 21 feet long over all. 63–3½ inch flues 14 feet long. Fire box 5½ feet long by 4 feet deep by 4 feet wide. All Catalogue fittings including Stack, 125 lb, pressure. This is a New Boller.—8 inch Centrifugal Dredge Pump with 200 feet of 5 inch spiral riveted galvanized pipe with chlows, rubber sleeve connections, suction hose, pulley shafting, clutches, winch heads, etc. This is a complete dredging outfit. New—Newer been set up.

as a compress and the second of the second o

outilit. condition.

condition.

4800 feet of 1 inch 6x9 Monitor Logging Rope.

4800 feet of 5% inch Crucible cast steel Hoisting

Bope. This is American Steel & Wire Co.'s Rope

Rope. This is American Steel & Wire Co.'s Rope

New.
1-32 inch by 6 inch Power Grind Stone with 24 inch by 6 inch pulley (mounted).
90,000 lbs. of 25, 30, 35, and 40 lb. Relay Bail, straightened, trimmed and drilled.

McGOWIN-LYONS HDWE. & SUPPLY CO MOBILE, ALA.

HOISTING ENGINES

Almost every size and for every duty. Steam, Electric and Gasoline,

STEAM PUMPS

18" x 10" x 12" Worthington 1000 gal.

Fire Pump,
65—10" x 6" x 12" Buffalo Brand new.
special price,
Many other sizes and makes,

COMPRESSORS

20 and 12 x 14 Chicago Pneumatic 1145

cu, ft. 22 and 14 x 18 Laidlow, Dunn and Gording 1200 cu. ft. Many smaller ones,

BOILERS

Return Tubular, Vertical and Locomotive Type, nearly every size new and second-hand in Stock.

LOUIS A. TARR, INC.

N. W. Cor. Sharp & Conway Sts. BALTIMORE, MD.

250 to 1000 H. P. WATER TUBE BOILERS

Immediate Delivery!

New, high-grade water tube boilers, 250 to 1000 H. P. ready for immediate delivery from points in the East, North and Central West.

Steel encased or for brick setting. Immediate delivery can be made from Chicago or our Eastern Headquarters in New Jersey, opposite New York City or Sildell, Louisiana near New Orleans.

Our low, quick sale price offers a saving of from 25% to 50%.

Your old equipment will be taken in on liberal exchange arrangement.

Our thoroughly posted engineers are waiting to give you expert service and complete details.

Quick action will enable us to guarantee quick installation.

HARRIS BROTHERS COMPANY West 35th & Iron Sts.

CHICAGO

SPECIAL OFFERINGS

Planer, 42"x42"x12' D&H Openside, 2 hds. Gear Planer, 6" Gleason, M. D. Milling Machines, No. 1 B&S, cone drive.

LATHES

24"x18' American, Geared Head. 24"x14' American, Geared Head. 24"x12' Prentice, Geared Head. 21"x14' LeBlond, Geared Head. 18"x14' LeBlond, Geared Head. 18"x18' American, Geared Head.

All late type machines, can be furnished with or without motors, 3/60/220 volt. Excellent condition,

McCoy-Brandt Machinery Company 210-14 Penn Ave., Pittsburgh, Pa.



The supply is limited—get in on this steel locker opportunity while they last-

Siene

Better send in your inquiry now—and get the low trice on these handsome steel lockers.

Advise quantity, sections and size desired. Lockers crated; knocked-down in sections; two keys with each locker; master key with each set. Sold F. O. B. Your Town

NEW YORK MACHINERY CO.

Dept. MA-XX

200 Fifth Ave., New York City

Nov

Mai





...

@ 20

ARC LAMP -

BELTING

Laboratory Mr Koch

2" 4" & Lacing BENDING MACH- "

-Production Dept. BOLTS - " 60

BRASS - 967

COPPER -% tubing FITTINGS, PIPE - 617

-Screw Machine Dept CAST IRON SCRAP 20 Pending order of WRichman Mfg Co

For new L'extension GROMMETS. PIPE 85

18" 3/8 1/4" 1/2 5/8 3/4"

489

Repair Dept. SCREWS -

A Want

accel

NOVEMBER

- Q. M. SUPPLIES—Schenectady, N. Y., Auction. For catalog write Q.M.S.O., 1st Ave. & 59th St., Brooklyn, N. Y.
- -METALS—Toledo, O., Sealed Bids. For catalog write C.O. Toledo Ordnance Re-serve Depot, Toledo,
- -AIR SERVICE E-QUIPMENT—Long Is-land, N. Y., Auction For catalog write C.O. Air Service Depot, Long Island, N. Y.
- -Q. M. SUPPLIES— Brooklyn, N. Y., Auction. For catalog write Q M.S.O., ist Ave. & 59th St., Brooflyn, N. Y.
- Nov. 16—MEDICAL SUPPLIES
 —Philadelphia, Pa.,
 Auction. For catalog
 write Surplus Property Sect., Office Surgeon General, Washington, D. C.
- O. M. SUPPLIES— Boston, Mass., Auc-tion. For catalog write C.O., Army Supply Base, Boston, Mass. Nov. 17-

SEND FOR CATALOG

SELLING PROGRAM

- METALS—Rock Island, III., Sealed Bids. For catalog write C.O., Rock Island Arsewal, Rock Island, III. Nov. 17-
 - Q. M. SUPPLIES— Camp Knox, Ky., Auction, For catalog write Q M S.O., 1819 W. Pershing Road, Chicago, III.
- Nov. 23—ORDNANCE MATE-RIALS—Rock Island, III., Sealed Bids. For catalog write C.O., Rock Island Arsenal, Rock Island, III.
- Nov. 23—Q. M. SUPPLIES— Chicago, III., Auction, For catalog write Q. M.S.O., 1819 W. Pershing Read, Chi-cago, III.
- "Early in December the large Ordnance Gun Plant and land located at Chicago will be sand located at Unicago will be sold. For information write: Chief, Construction Service, O.Q.M.G., Room 3337, Muni-tions Building, Washington, D. C."

The Government reserves the right to reject any or all bids.

SEND FOR CATALOG



Have You a Ten Minute Man?

successful treasure hunter is worth more to you than the clerk who spends ten minutes a day looking up War Department ads.

For there is treasure a plenty in these. They announce Surplus Property sales that spell tremendous savings and quick deliveries.

The things you need are among them. All you have to do is LOOK. Then write for catalog. Then attend the sale.

Don't overlook a single ad. If you do, you may overlook a saving of great proportions. Your clerk can look them up and then route the publication through the various departments.

It's only a ten minute job—or less. And big dividends await your taking. If you want to know more about the sales, ask Major J. L. Frink, Chief, Sales Promotion Section, Office, Director of Sales, Room 2515 Munitions Bldg., Washington, D. C.



Send for this booklet: The story of War Department Sales

ARTMENT

M

WATER TUBE BOILERS

Two (2) 338 HP Heine Water Tube Boilers, pressure allowed last inspection 200 lbs., single drum type, hand fired, complete with Bayer Soot Blowers, full front, all castings, and steam trimmings. Immediate Shipment. An unusual opportunity to secure a pair of high grade boilers at an exceptionally low figure.

FRANK TOOMEY, Inc.

127-131 N. 3rd St.

Philadelphia

OIL AND GAS ENGINES FOR SALE-New and Rebuilt Full Diesel Type Oil Engines

-500 BHP, Vert., 4 cyl. Cpld to A.C. or D.C. Gen. -450 BHP, Vert., 6 cyl. Cpld. to A.C. Gen. -450 BHP, Vert., 6 cyl. Bld. to A.C. or D.C. Gen. -225 BHP, Vert., 3 cyl. Cpld. to A.C. Gen. -225 BHP, Vert., 3 cyl. Cpld. or Bltd. to A.C. or D.C. Gen. -200-225 BHP, Vert., 6 cyl. Cpld. to A.C. or D.C. Gen. -170-190 BHP, Vert., 3 cyl. Cpld. or Bltd. to A.C. or D.C.

Gen.

1—120 BHP, Vert., 2 cyl. Cpld to A.C. Gen.

1—120 BHP, Vert., 4 cyl. F.M. Type "Y" Bltd.

1—200 BHP, Vert., 4 cyl. F.M. Type "Y" Bltd.

1—300 BHP, Vert., 2 cyl. F.M. Type "Y" Bltd.

1—37½ BHP, Vert., 1 cyl. F.M. Cpld. to D.C. Gen.

2—150 BHP, Vert., 3 cyl. Melts Bltd.

1—150 BHP, Vert., 3 cyl. F.M. Light Dist. Oil Bltd.

2—80 BHP, Vert., 3 cyl. F.M. Light Dist. Oil Bltd.

2—80 BHP, Vert., 2 cyl. F.M. Light Dist. Oil Cpld. to A.C. Gen.

2—35 BHP, Vert., 1 cyl. V.S. Crude Oil Bltd.

1—35 BHP, Vert., 1 cyl. V.S. Crude Oil Bltd.

35 BHP, Vert., 2 cyl. Olds Kerosene Oil Bltd.

Gas Engines.

Gas Engines -800 BHP, Horz. Twn. Tndm. Dbl. Act'g. Natl. Gas Cpld. to

A.C. Gen.

A.C. Gen.

A.C. Gen.

Tobal Act'g. Natl. Gas Cpid. to
A.C. Gen.

A.C. Gen.

A.C. Gen.

A.C. Gen.

A.C. Gen.

A.C. Gen.

Spl. Tndm. Dbl. Act'g. Natl. Gas Cpid. to
A.C. Gen.

A.C. Gen.

Tobal Act'g. Natl. Gas Cpid. to
A.C. Gen.

Tobal Act'g. Natl. Gas Cpid. to

2-375 BHP, Hors. Sp. A.C. Gen.
A.C. Gen.
1-150 BHP, Vert., 3cyl. Cpld. to D.C. Gen.
1-100 BHP, Vert., 3 cyl. Epid. to 3-wire D.C. Gen.
1-150 BHP, Vert., 3 cyl. Bitd. or Cpld.
1-250 BHP, Vert., 4 cyl. Bitd. or Cpld. NEW.
1-100 BHP, Vert., 4 cyl. Bitd. or Cpld. NEW.
Above only partial list-write or wire us full details your requirements.

A. McMILLAN, 628 Monadnock Block, Chicago Specialist in Dissel Type Oi and other Internal Combustion Engineering

MOTOR and STARTERS

-75 H.P. CCL Westinghouse Motor, 25 cycles, 3 phase, 715 R.P.M. complete with base, pulley and no voltage release starter.

New Type E Westinghouse, 2 or 3 Phase no voltage re-lease Starters, from 5 to 100 H.P. Volts 220-440-550. At Attractive Prices.

ANDREW I. MEHAN COMPANY 119 N. Third St. Philadelphia, Pa.

NEW - EQUIPMENT - BARGAINS

KERR TURBINE ENGINES

2500 H.P. 3600 RPM 2650 H.P. 3600 RPM 3000 H.P. 3600 RPM

TURBINE STEAM PUMPS

20 H.P. Non-condensing 3600 RPM 5 H.P. Direct Connected 2500 RPM

BOILERS

25 H.P. Vertical 80 H.P. Locomotive A.S.M.E. 80 H.P. Return Tubular A.S.M.E.

125 H.P. Return Tubular A.S.M.E. **PUMPS**

10x12x12 Worthington Horizontal Du-

7x8x10 Deane Vertical Duplex 10x6x18 National Transit Vertical Simplex

No. 7 Single Cylinder Double action Force

MISCELLANEOUS

100-Ton Hydraulic Bending & Straightening Press Angle Bending Machine Channel & Angle Flanging Machine Lysholm Tables **Buckeye Oil Rivet Forges** Buffalo Blacksmith Forges

Roebling Patent Slings
Hisey Grinders—3 H.P. Motors—3
Phase—60 Cycle—440 Volts—Second-hand.

POTTSTOWN STEEL COMPANY DOUGLASSVILLE, PA.

20 K. W.

125 v. Crocker-Wheeler Generator, direct connected to 8 x 9 Fleming Harrisburg, horizontal, side crank, automatic engine, complete with rhossist for back of board. Operated 6 months. Price \$650 cars Phila.

COLEMAN-SHOEMAKER, INC. 20th & Clearfield Streets - Philadelphia

FOR SALE prices.—
We are overstocked and closing these out—Low PRICES for immediate sale.—

REGORYC ELECTRICO.

16th & Lincoln St., Chicago Ill.

60 CYCLE MOTORS

-200 H.P. 450 RPM, 3 Ph, 440 V. G.E. New. -75 H.P. 900 RPM, 3 Ph, 220 or 440 Volts. -50 H.P. All Speeds, 3 Ph, 220 or 440 Volts. -15 H.P. All Speeds, 3 Ph, 220 or 440 Volts. -30 H.P. All Speeds, 3 Ph, 220 or 440 Volts. -25 H.P. All Speeds, 3 Ph, 220 or 440 Volts. Many smaller sizes, 25 and 60 Cy, A.C. and D.C. V. M. NUSSBAUM & CO., Fort Wayne, Ind.

BLOWERS

No. 8, Single Inlet American Sirocco Fans direct connected to 5x5" ABC Type "A" Single Cylinder High Pres-sure Engine, new.

DIXIE MILL SUPPLY CO., INC. NEW ORLEANS, LA.

Engine Generator Unit

150—KW, 2300-V, 3-P, 60-C, Exciter and Swbd.

PFANNMUELLER ENGINEERING CO. 503 First National Bank Bldg., Chicago.

OIL ENGINE 60 H. P.

OTIS PASS. ELEVATOR

Direct to A.C. Motor, controller, fine Cab 6' 9"x7' 6", all Sheeves, Cables, Weights, Brand New.. \$1350. WM. SEYMOUR
5117 Kenwood Ave. CHICAGO

Blue Book of Southern Progress

A rich and stimulating volume it is, valuable to the investor, of daily use to the business man, and exceedingly helpful to student and educator. In thoughfully compiled records like this is much of the meat of history; and truly may it be said of this one that it is a book, not only to be tasted, but to be "chewed, swallowed and digested." -Atlanta Journal.

Single Copies 50c

Manufacturers Record, Baltimore, Md.

22

rd.

it

0. go.

GO

COMPARE THESE MOTOR PRICES

se are only a few of the bargains we offer, picked at random from our large stock

NEW MOTORS	H. P. Make Ph. Cy. Type Velts. B.P.M. Price. 2— 37 Gen. Elec 3 60 sl. ring 220 750 425.00
H. P. Make 1. Type 1. Type	3- 35 Lincoln
USED MOTORS	15 Westinghouse . 3 60 sl. ring 550 1120 265.00 123 Lincoln 2 60 sq. cage 220 600 225.00
200 Gen. Elec. 3 60 Slip ring 2200 600 1175.00 200 Gen. Elec. 3 60 Slip ring 2230 550 1175.00 200 WestInghouse 2 60 slip ring 2230 550 1100.00 200	Dec. Section Dec. Dec.

Some have not been used more than 60 days.-All carry our usual ONE YEAR GUARANTEE.-1000 other bargains. LARGEST STOCK OF ITS KIND IN AMERICA.

NATIFIAN KILLING

EQUIPMENT FOR SALE

SOUTH SIDE FOUNDRY & MACHINE WORKS Charleston, W. Va.

CASTLE & WILSON, 1601 Arrott Building, PITTSBURGH, PA.

1-150 K.W., D.C., Crocker-Wheeler, 250 volt, 200 R.P.M. engine type. 1-200 K.W., Bullock, 220-239 volt, direct current, 450 R.P.M., 3-bearing.

1-200 K.W., Bullock, 220-250 volt, direct current, 450 B.P.M., 3-bearing.

MOTOR-GEMERATOR SET
1-75 KW. 500 volts, D.C., Burke Generator to 115 H.P. 2200 volts, 2-bearing.

Buckeye. 10x16" Phoenix. 16 x16" McEwen, 16½x30" Buckeye. 12x16" Buckeye. 24 x2" Fulton Iron Works.

TANDEM COMPOUND BELIED ENGINES AS FOLLOWS
13 and 22½ x 30" Buckeye.
12 and 21 x 37" Buckeye.

12 and 21 x 37" Buckeye.

12 and 21 x 37" Buckeye.

1-200 K.W., 250 volt, 200 R.P.M. General Electric Generator and Erico Bell Engine. 200 R.P.M. 200 role, 3 phase generator, direct connected to four valve engine, 200 R.P.M. 200 place. 3 phase generator, direct connected to piston valve engine, 250 R.P.M.

WATER TUBE BOILERS
1-400 H.P. B. & W., 150 lbs. Iowa. AIR COMPRESSOR: 1-18x18" Duplex, belt driven.

CONDENSER
1—12 and 20x24 Blake Single-cylinder Jet Condenser, brass fitted.

RETURN TUBULAR LOCOMOTIVE

WATER TUBE SCOTCH MARINE

A LARGE STOCK OF HIGH-GRADE BOILERS OF PRACTICALI.Y ALL SIZES, TYPES AND MAKES, TAKEN OVER FROM DU PONT CHEMICAL COMPANY'S AND OTHER PLANTS WITH PRODUCTION RECORDS-RECONDITIONED, OFFERED SUBJECT TO ANY INSPECTION, AVAILABLE NOW!

"SAVE TIME AND MONEY ON YOUR POWER INSTALLATION—LET DAVIS FURNISH THE BOILERS"

CENTRAL 1494 J. F. DAVIS HARRIS TRUST BUILDING CHICAGO, ILL.

400 K. W. PLANT A REAL BARGAIN FOR OUICK SALE

2—Used 300 H.P. type T.A. DeLaval Turbines each mounted on common base with and direct connected to 2—100 K.W. each, 80% P.F. Bullock, 3 phase, 60 cycle, 240 voit, 900 R.P.M. Generators making 400 K.W. capacity, either 240 or 480 voits. Units complete with exciters, switchboard instruments, barometric condenser, connecting plping, circulating pumps, vacuum pumps, and accessories. Plant can also be operated non-condensing if desired. Full particulars on request. particulars on request.

-ALSO-

BOILERS ENGINES MOTORS GENERATORS

THE RANDLE MACHINERY CO. Established 36 years

1734 POWERS ST. CINCINNATI, OHIO

MACHINERY—FOR SALE

ELECTRICAL

DYNAMOS, MOTORS AND GENERATING UNITS.

POWER PLANT

BOILERS, ENGINES, PUMPS AND AIR COM-PRESSORS.

METAL WORKING MACHINE TOOLS
PRESSES, LATHES,
PLANERS, MILLING MACHINERY, Etc.

LARGE STOCK OF NEW AND USED EQUIPMENT ON HAND AT ALL TIMES

THE O'BRIEN MACHINERY Co. 113 N. Third St., Philadelphia, Pa.

Long-Distance Bell Telephone: Market 9727 Cable Address: O'Brien, Philadelphia

BARGAIN PRICES **BRAND NEW** LINCOLN MOTORS

9-15 H.P., 220 Volts, 60 Cycle, 3 Phase, 1800 RPM., 40° Motors, Complete with Base. Pulley, Compensator, each\$160.00

5-7 1/2 H.P., Same as above, each\$120.00

Address A-275

Care Manufacturers Record Baltimore, Md.

A. C. MOTORS

Immediate Delivery. Large Stock, Three Phase and Single Phase, Sizes ½ to 50 H. P Send us Your Inquiries Before You Buy

SEEGER MACHINE TOOL COMPANY Machinery and Supplies

34 S. FORSYTH ST.

ATLANTA, GA.

Pipe, all sizes, bought and sold. What sizes are you in the market for? What sizes have you for sale?

PIPE & CONTRACTORS' SUPPLY CO.

3 Dover Street **NEW YORK**

FOR SALE

PIPE SECOND HAND All Sizes 1" to 24"

Furnished with new threads and couplings, suitable for every practical Also large assortment of Contractors' Equipment, Hoisting Engines, Bollers, Concrete Mixers, etc.; all thoroughly overhauled.

MARINE METAL & SUPPLY CO.

167 South Street

NEW YORK

PIPE

ALL SIZES

SECOND-HAND FOR ALL PURPOSES

FRANK GRIFFITH

412-442 Moyer Street,

Philadelphia, Pa.

PIPE - VALVES - FITTINGS

Have just purchased from the Government the following Black and Gaivanized Pipe (NEW).

17,000 ft. 1½"; 33,000 ft. 2"; 64,000 ft. 2½"; 40,000 ft. 3"; 85,000 ft. 3½"; 90,000 ft. 4"; 10,000 ft. 4½"; 11,000 ft. 5"; 12,000 ft. 6"; 19,000 ft. 7"; 20,000 ft. 8"; 5,000 ft. 9"; 10,000 ft. 10"; 12,000 ft. 12";

Can furnish random lengths or cut to sketch. Price low for immediate shipment.

WE ALSO HAVE 4,000 tons of Flanged and Screwed Fittings and Valves from $\frac{1}{4}$ to 26", and invite your inquiries covering same.

HANOVER SALES COMPANY

P. O. Box 856

Philadelphia, Pa.

BLACK AND GALVANIZED STEEL PIPE

IMMEDIATE DELIVERY FROM STOCK

BLACK PIPE ‡" to 20"

GALV. PIPE ‡" to 8"

Cast Iron Bell and Spigot Fittings, Valves and Hydrants Cast Iron, Malleable and Brass Screwed Fittings Cast Iron and Steel Flanged Fittings and Valves

Brass Valves

Cast Iron and Forged Steel Flanges Steam Specialties

25th & Morris Sts. Chas. J. Grant Supply Co. Philadelphia Pa.

22

ord.

LATHES

27"x10' Greaves Klusman Heavy Duty D.B.G. Quick Change.

26"x12' Bridgeford Heavy Duty D. B.G. Quick Change.

21"x 8' LeBlond Heavy Duty D.B.G. Quick Change.

19"x10' Cisco Quick Change.

19"x 8' Sidney Heavy Duty D.B.G. Quick Change.

18"x10' Greaves Klusman.

18"x 8' Schumaker Boye Change.

18"x 8' Greaves Klusman.

16"x 8' Monarch D.B.G. Quick Change Taper Attachment.

16"x 8' Greaves Klusman.

16"x 6' Greaves Klusman.

14"x 6' Hamilton Quick Change Taper Attachment.

BOILERS **ELECTRIC MOTORS** MACHINE TOOLS

DELTA EOUIPMENT CO.

148 N. 3rd Street Philadelpnia, Pa.

COMPLETE MINERAL GRINDING EQUIPMENT FOR SALE

3-42" Emery Mills, 2-Jaw Crushers, 3-Bolting Reels, 1-Sturtsvant Roller Mill, 2-Steam Engines.

CONSOLIDATED PRODUCTS COMPANY, Inc. 15 PARK ROW, NEW YORK CITY

No. 4 **RYERSON** FRICTION

Practically New

Wm. Wharton, Jr. & Co., Inc. P. O. Box 214

PIPE NEW PIPE

Owing to the present shortage of pipe we are pleased to advise that we have just purchased from the Government 1800 tons of Black and Galvanized new random length pipe from 2" to 12" which we can offer at attractive prices for immediate ship-

To those who can use 3½" Black or Galvanized Pipe please be advised that we can give a very substantial discount on same. Will ship plain end, flanged or screwed.

COMMONWEALTH PIPE & SUPPLY COMPANY

98-104 Merrimac St. BOSTON, MASS.

RESALE DEPARTMENT

1-No. 0 Wilmarth & M BAND SAWE MILLS & LUPTON SUPPLY COMPANY, Chattanooga, Tonn.

UNDERWRITERS FIRE PUMPS

1500 Gallon 20x12x16 Buffalo Duplex, slx hose valves.

1000 Gallon 18x10x12 Knowles Duplex, four hose valves.

500 Gallon 14x7x12 Knowles Duplex, two hose valves.

Send for our November list of the largest stock in the United States of slightly used and thoroughly overhauled MACHINE TOOLS, POWER, ELECTRICAL AND CONTRACTORS' EQUIPMENT.

WICKES MACHINERY CO. JERSEY CITY, N. J.

Established 1900 **USED OIL ENGINES**

20, 35, 40, 50, 60, 85, 100, 120, 140, 150, 200, 225, 280 and 500 H.P. used oil engines in good condition. Write for prices.

ROBERT P. KEHOE

7 East 42nd St., New York City Telephone Vanderbilt 9595

IRON AND STEEL PIPE

Large quantity Pipe, with threads and couplings, used in Government plant a short

Rods-100 tons 7/8" Round Rods, 14' to 22' lengths.

Central Pipe & Supply Co.

Box 1099 CHARLESTON, W. VA.

PIPE. PIPE PIPE FOR SALE

15 miles 8" 28 pound line pipe 60c. foot; 5 miles 6" line pipe 40c. foot; 300.000 feet 1" pipe 4c. foot; all f.o.b. cars Beaumont, Texas.

BROOKS SUPPLY COMPANY

Beaumont, Texas

HENRY A. KRIES & SONS CO.

Steam and Mill Supplies, Pipe Fittings, Complete Power Plant Equipment, Manufacturers and Machinists, Refrigerating Engi-neers and Contractors.

6 and 8 W. Lombard St., BALTIMORE, MD.

Red and Buff Dry Pressed Brick, Common Building Brick

GEORGIA-CAROLINA BRICK CO.

HOWARD H. STAFFORD, Pres. AUGUSTA, GA.

MACHINERY

SUPPLIES

IMMEDIATE DELIVERY:

BOILERS

1—B. & W., 284 H.P. Water Tube; 150 lbs. pres.

1—Erle City, 250 H.P. Water Tube; 150 lbs. pres.

14—72" x 18' Horisontal Tubular; 125 lbs. pressure.

2—66" x 29' Horisontal Tubular; 115 lbs. pressure.

1—10 H.P. Locomolite Fire Box 100 lbs. pressure.

1—50 H.P. Locomolite Fire Box; 36 lbs. pressure.

1—50 H.P. Internally Fired; 90 lbs. pressure.

1—30 Vertical: 110 lbs. pressure. 1-30 Vertical; 110 lbs. pressure. 1-20 H.P. Vertical; 100 lbs. pressure.

ENGINES

1-23" x 43" Hamilton Right Hand Corliss.

1-20" x 42" Ohlo Right Hand Corliss.

1-32" x 42" Allis Right Hand Corliss.

1-12" x 24" Buckeys Loft Hand.

1-12" x 24" Douglas Plain Silde Valve.

1-19" x 12" Chandler Taylor Plain Silde Valve.

1-9" x 10" Armington & Simms Automatic.

PUMPS

PUMPS

1—16" x 8¾" x 12" Duplex Steam.

1—14" x 10¾" x 10" Duplex Steam.

1—12" x 7" x 10" Duplex Steam.

1—10" x 6" x 10" Duplex Steam.

2—6" x 4" x 6" Duplex Steam.

2—6" x 4" x 5" Duplex Steam.

2—4\" x 2¾" x 5" Duplex Steam.

2—4\" x 2¾" x 4" Duplex Steam.

2—4\" x 2¾" x 4" Duplex Steam.

2—8" x 8" Deane Triplex Single Acting Power Pump.

1—8" x 8" Deane Triplex Single Acting Power Pump.

1—Kingsford Horizontal Centrifugal Water Pump.

24" suction, 24" discharge.

1—Platte Iron Works Horizontal Centrifugal Water pump, 14" suction, 12" discharge.

1—Fulton Horizontal Centrifuga Water Pump.

12" suction, 10" discharge.

AIR COMPRESSORS

1—Sullivan Straight Line Air Compressor, 24" steam cylinder, 28" low pressure air cylinder, 16% high pressure air cylinder, capacity 1850 cu. ft. per min .

1—Laidlow-Dunn & Gordon Belt /riven Air Compressor, size 25" x 15" x 18", capacity 1750 cu ft.

cu ft.

-Chicago Pneumatic Single Stage Steam Driven
Compressor, two cylinders, size 22" x 16";
capacity 1700 cu, ft.

-Latitlow-Dunn & Gordon Belt Driven Air Compressor, size 25" x 15" x 18"; capacity 750
cu, ft.

pressor, size 25" x 15" x 18"; capacity 79e cu. ft.

1—Ingersoil-Bergeant High Pressure Bteam Driven Air Compressor, two stage, low pressure cylinder 13" x 12", high pressure cylinder 12" x 12"; capacity 600 cu. ft.

1—Clayton Duplex Steam Driven Air Compressor, duplex steam and two stage air cylinders, dial steam cylinder 16", low pressure air cylinder 16", stroke 16%, high pressure air cylinder 10", stroke 16%; capacity 425 cu. ft.

1—Chicago Pneumatie Fuel Oil Driven Compressor; capacity 300 cu. ft., 160 lbs. pressure. Driven Compressor air cylinder 10", stroke 10", low pressure cylinder, 8" high pressure cylinder, 8" stroke, 7" steam cylinders.

TANKS

25-80.000 Gal. Vertical, Storage. " horizontal, storage. 20-10 000 15- 5.500 10- 2.000

25—1,000 "ver. or horizontal storage.

50—Complete Underground Gasoline Storage Tanks,
complete Underground Gasoline Storage Tanks,
terial, bearing Underwritere label, with hand
pump, also pipe and fittings complete.

50—Complete Underground '.asoline Storage Tanks,
consisting of 279 gal. riced tank, 8/16 in. material, with hand pum, also pipe and fittings
complete.

55—22 in. by 54 by 356.

complete. 25—22 in. by 54 in., 150 lbs. pressure. 10—20 in. by 8½ ft. to 9½ ft., 150 lbs. pres. 10—16 in. by 42 in., 150 lbs. pressure.

Send for a free copy of Bulletin No. 205 describ-ing our complete Stocks of Machinery and Equip-

HARRIS BROTHERS CO.

35th & Iron Sts., Chicago, Ill.

HOISTS DERRICKS

ELECTRIC HOIST AND DERRICK \$1600 PRICES F. O. B. CARS, HOG ISLAND, PA.

You Save at Least \$2000

These Hoists and Derricks are standard late models, manufactured by The American Hoist & Derrick Co., St. Paul, Minn. They are almost new, and every one is GUARANTEED to be in first-class running order.

The Hoists have two drums and swingers, and are complete with Starting and Control Equipment. Either side or bank control, and rated 6000 pounds single line on each hoisting drum. Slewing rope 36 ft. per minute, and hoisting rope speed 160 ft. per minute. The MOTORS are Otis 37 H.P. A.C., 60 cycle, 3 phase, 440 volt, slip-ring induction type and, if desired, may be changed to suit the individual current requirements of purchasers at cost.

DIMENSIONS OF DERRICKS

Mast.....16 in. square, 40 ft. high.

Boom.... Made of (2) 14 in. sq. timber 48 ft. long spliced to lengths of 80 ft. with (2) ½ in. and (2) 1½ in. trus rods.

Stiff Legs. 14 in. sq., 55 and 60 ft long. or 16 in. sq. 50 ft. long, will furnish either length desired, capacity 5 to 10 tons. Bull wheel 16 ft. dis. Principal sheaves 16 in. dia. and 14 in. single blocks.

The Cable which was formerly used will be given with each purchase of a Hoist and Derrick.

These Hoists and Derricks are assembled on the Grounds at Hog Island and may be inspected at any time. Equipment is being sold complete and in units of a Hoist or Derrick if desired. Immediate shipment can be made anywhere, but QUICK ACTION IS IMPERATIVE.

Wire, Phone or Write for Detailed Information, Folder, Etc.

THE ELECTRIC HOIST & DERRICK CO.

RECORDS BUILDING, HOG ISLAND, PA.

-42" and 54" J. A. Fay Band Rip Saw. 1.—54" Glibert Band Resaw.
-Glen Core 8" 4-side Matcher. 1.—Preble 10" 4-side Matcher.
-J. B. Hoyt 14" 4-side Matcher. 1.—24" 3-drum Berlin Sander.
-39" 2-drum Fay. 1.—26 x 12 Double Surfacer, eadless bed type.
-48" Circular Resaw—power feed. 1—30" Cricular Resaw—power feed.

MOULDERS:
-7" 3-side Houston.
-9" 4-side Williamsport.

1-7" 3-side Houston. 1-9" 4-side Williamsport. Bollers, Holsts, Pumps, Engines, Ironworkin; Machinery, Belting, Shaft-ing, Pulleys, Hangers.

THE CLEVELAND BELTING & MACHINERY CO. CLEVELAND, OHIO 1524 University Road

A Real Opportunity NEW STRUCTURAL STEEL-SLIGHTLY RUSTED-NOT PITTED

500 tons 6" 12¼ lb. I-Beams 15' 0" long 400 tons 5" 9¾ lb. I-Beams 9' 0" long 500 tons 4" 7½ lb. I-Beams 12' 0" long

Exceptionally low price before removal.

Located New Cumberland, Pa.

HENRY A. HITNER'S SONS CO. 4501 Richmond St.

ELECTRICAL MACHINERY and EOUIPMENT Immediate shipments from stock

Motors and Generators Desk and Ceiling Fans Exhaust Fans and Blowers **Electrical Instruments**

Circuit Breakers

Factories' Branch L. B. GOTTSCHALL & CO. DALLAS, TEXAS

NEW AND SECOND-HAND

MACHINE

HENRY PRENTISS & CO.

149 Broadway Warehouse: Jersey City New York, N. Y.

FOR SALE PUMPING UNIT, CONDENSER, SUPERHEATER, ETC.

One pumping unit made up of two slow speed 6" double suction pumps, capacity of each pump 825 GPM; pumps direct connected to 8x8 Troy fully enclosed, self-oiling, throttling engine located on one base plate between the two pumps. Pumps are designed to work against a 35' head and to run 360 RPM. Equipment manufactured by Lawrence Pump & Engine Co.; Lawrence, Mass.

One No. 34 Schutte & Koerting Multi-Jet Condenser, complete with fittings, tail pipe and release valve.

Necessary spray nozzles, gauges, valves, pipe and fittings for installation of No. 34 Schutte & Koerting Multi-Jet Con-

One Fig. 1405—12" Cochrane Multiport Horizontal Atmospheric Release Valve.

One direct fired Foster Superheater, will raise the temperature of 3500 pounds steam per hour at a working pressure of 100 pounds to 600 degrees Fahrenhelt, final temperature, corresponding to a superheat of 263 degrees.

Address: Supply Department SOUTHLAND COTTON OIL CO., Paris, Texas

FOR SALE

1-500 H.P. Chandler & Taylor Twin Engine.
1-250 H.P. Erie City Engine.
1-150 H.P. Hanover Engine.
1-No. 6 Mitts & Merrill Hog.
1-42x48' Jeffrey Bark Shredder.
1-No. 5 Williams Bark Shredder.
1-No. 3 Williams Bark Shredder.
1-No. 2XX Williams Bark Shredder.
1-No. 2XX Williams Bark Shredder.
1-No. 2XX Williams Bark Shredder.
1-20 K.W. Westinghouse Geherator.
1-Forbes Pipe Threading Machine 2½ to 6".
1-Quadruple Effect Copper Vacuum Pan.
1-Triple Effect Copper Vacuum Pan.
1-Triple Effect Copper Vacuum Pan.
1-Single Effect Copper Vacuum Pan.
1-Single Effect Copper Vacuum Pan.
1-No. 90 American Blower Co. 54" Steel Encased Fan.
60-3" Brass Tees Straight and reducing.
12-Reliance Safety Water Columns.
12-3½" Scott Pop Valves.
Water, Condensation and Vacuum Pumps.
Bronze Liquor Pumps. CHARLESTON EXTRACT CO. CHARLESTON, W. VA.



d.

RAILROAD AND CONTRACTORS EQUIPMENT

STEAM SHOVELS FOR SALE

1-21 Marion Caterpillar-with Crane At-

2-18 Osgood Caterpillar

2-1 yard Osgood Caterpillar

1-28 Marion Traction-- 3/4 yd. dipper.

1-Type "B" Erie Traction.

Equipment Corp. of America 628 Land Title Building PHILADELPHIA, PA.

BARGAIN
36' Gauge Locomotives
Good engines—Ready for service
-Yulcan 10x14" 14 ton four wheel saddle

tank. American 10x16" 18 ton four wheel sad-

dle tank. Send for specifications and prices.

E. C. SHERWOOD

50 Church St. New York

FOR SALE.

1-14x24 Baldwin Saddle Tank Standard Gauge Locomotive.

-grid Baldwin Saddle Tank Standard Cure
Locomotive

1—Erie B Traction Steam Shovel. 1—10 Ton Industrial four-Wheel Locomotive Crane,

Chas. T. Lehman Machinery Co. Birmingham, Ala.

RAILROAD and CONSTRUCTION **EQUIPMENT**

IMMEDIATE DELIVERY

Thomas F. Carey Co. New York, N. Y. 120 Liberty St.,

USED EQUIPMENT FOR SALE IMMEDIATE DELIVERY

1—Lambert 800 Ft. 1½ in. Cableway complete, except endless line. In good condition, located at Spartanburg, S. C.

HOISTS (Steam)

1—John F. Byers, double cylinder, double friction drum 7½ x9 Hoisting Engine, complete with boiler and with direct swinging gear. Good condition. Engine No. 4416. Located at Gaffney, S. C. Lambert D. D. D. C. 6½ x8 Holst complete with boiler and fittings.

1—Lidgerwood, double friction, double drum holst with boiler and fittings complete, in good running order.

1—John F. Byers, double friction, double drum holst with boiler and fittings complete, in good running order.

1—John F. Byers, double friction, double drum holst with boiler and fittings.

2—John F. Byers, double friction, double drum holst with boiler and fittings.

2—John F. Byers, double friction, double drum holst with boiler and fittings.

2—John F. Byers, double friction, double drum silvand, friction holst, size 7½ x12, practically new and in excellent condition. (F. O. B. Spartanburg, S. C.)

3—American, double cylinder, double drum \$½ x10, Hoisting Engine, Excellent ahape. F. O. B. Spartanburg, S. C.

1—reversible Single drum mine holst D.

reversible Single drum mine hoist D. C. with cable.

STEAM DRILLS
8-Ingersoll-Rand Rock Drills. Located
at Spartanburg, S. C., complete with
tripod and weights.
1-Ingersoll-Rand Jack Hammer complete with steel hose and parts.

Also other equipment not listed

Willard, Boggs & Co. Rez Theatre Bldg., SPARTANBURG, S. C.

FOR SALE OR RENT

Steam & Electric COMPRESSORS of all sizes.

Hoisting Engines
Derricks
Locomotive Cranes
Concrete Mixers
Orange Peel and Clam Shell Buckets
Motors, Generator, and Refrigerator Unit
Steam and Electric Shovels.

COMPLETE STOCK READY FOR IMMEDIATE DELIVERY ARCHER ARMSTRONG & CO.

4839 A Grand Central Terminal, N. Y. City PHONE Vanderbilt 10408

FOR SALE

1-7" x 10" 3-Drum D.C. Stroudsburg skeleton Hoisting Engine complete with Swinging Gear attached, good as now 100 track, 12 lb. Rail. 300-ft. of 24" gauge Portable track, 12 lb. Rail. 2-1-yd. Steel Wiener Gars 2-way 24" gauge. 1-1-yd. Hayward Class E. Orange Feel Buckst. Hawe 16 hand 20 lb. Portable teach, Cars, Etc.

JOHN M. GREENE

BLUE BOOK

SOUTHERN PROGRESS

Many individuals and organizations have distributed copies of this book by the hundreds. It is crammed full of facts and figures of the South's resources and development that business men could study with profit.

Single copies 50c

Manufacturers Record, Baltimore, Md.

LOCOMOTIVE CRANE

For Sale

20-Ton McMyler Interstate 8 wheel locomotive Crane, standard gauge, 50 foot boom, suitable for twoline bucket work.

> Condition first class Quick Delivery Price attractive

NIXON-HASSELLE COMPANY

Chattanooga, Tenn.

MERRIMAN ASPHALT PLANT

We have for sale one rebuilt No. 1 Merriman 2000 yard One-Car Steam Melting Asphalt Plant. It is in fine condition and we can make good delivery.

Here's your chance to get a real asphalt plant at a price that is right. Better get in touch with us quickly.

The East Iron & Machine Co. Lima, Ohio.

DUMP CARS

2—1 yd steel V shape 36 in gauge 10—1 yd steel V shape 30 in gauge 16—1½, yd Western two-way side dump, 24 in gauge

LOCOMOTIVES

1—9 ton American 36 in gauge Saddle Tank 1—14 ton Porter 36 in. gauge Saddle

HOISTING ENGINES

2—7x12 American Single Drum 1—7x7 Lidgerwood Double Drum 1—20 H.P. Thomas Electric Double Drum

MID-CONTINENT EQUIPMENT & MACHY. CO.

Security Bldg. St. Louis, Mo.

LOCOMOTIVES and CARS

4—100,000 cap. flat bottom pendelas, 1—140,000 cap. all steel flat car. 4—60,000 cap. steel undrf. dump cars. 2—10x16 cyl. 36 in. ga. saddle tanks.

WALTER A. ZELNICKER SUPPLY CO., ST. LOUIS Rails, Track Material, Steam Shave's, Tanks,

GEORGIA CAR & LOCOMOTIVE COMPANY

Offices and Works, Atlanta, Georgia

REBUILT RAILROAD EOUIPMENT

Locomotives-Cars-Coaches Standard Trucks for Logging

REPAIR PARTS for CARS and LOCOMOTIVES

FOR SALE * FOR RENT HOISTING ENGINES WITH BOILERS

3-81/4 x10 D.C., D.D. American, with

swinger.

-7x10 D.C., D.D. Lidgerwood.

-7x10 D.C., D.D. American.

-64x10 D.C., D.D. Lidgerwood, with swinger. WITHOUT BOILERS

WITHOUT BOILERS

1—12x18 D.C., D.D. Bacon,
1—14x18 D.C., S.D. Bacon,
2—10x15 D.C., S.D. Bacon,
2—10x12 D.C., S.D. Lidgerwood,
2—8½x12 D.C., S.D. Lidgerwood,
3—10x12 D.C., S.D. Lidgerwood,
3—10x12 D.C., S.D. Lidgerwood,
4—7x10 D.C., D.D. Lidgerwood,
1—7x10 D.C., D.D. American,
1—5½x8 D.C., D.D. American,
10—30 H.P., D.D. Electric

SHOVELS

2-Type "B" Erie.

LOCOMOTIVES

2--9x14--36" Gauge Vulcan. 2--10x16--36" Gauge Porter.

CARS

20-21/2-yd. two-way Western Dump Care Pumps, Boilers, Derricks and Concrete Mixers, etc.

PITTSBURGH MACHINERY & EQUIPMENT CO.
1302 Fulton Building - Pittsburgh, Pa.

CRANES

- 1—15 Ton Bucyrus, 8 Wheel, Standard Gauge, 50'
 Boom, Double Drum.
 2—15 Ton Industrials, 8 Wheel, Standard Gauge, 40'
 R. Boom, Double Drum.

 STEAM SHOVEL
 1—Marion 21 Steam Shovel mounted or

CRANES

2 Weeks Delivery.
2—99 Ton Browning, 8 Wheel Standard Gauge, 46 and 59 ft. Booms, single Drum.
1—15-29 Ton Brown-Holst, 8 Wheel, Standard Gauge 47 boom, Double Drum.
1—15 Ton Oscood, Single Drum.
1—12 Ton Oscood, Single Drum.

1—12 Ton Osgood, Standard Gauge, 3 Wheel, 40' Machine, completely rebuilt and in first-class condition. Bolier completely retubed, new tires, new Room. Bucyrus, 3 Wheel, Standard Gauge, 50' Room Room.

Shovel mounted on full cater-B. M. WEISS

CRANES

pillar traction. Equipped with % yd. Dipper and extra long dipper stick. New 1920. Fine Shape,

- 1—Marion 21 Steam Shovel, Caterpillar Traction, % yd. Dipper, 15' Dipper Stick, No. 4280. Excellent condition.
- 1—Osgood 18 Steam Shovel Traction Crane % Yd. Dipper. Also 30' Steel Boom, as Crane Shop No. 472.

Philadelphia, Pa.

1324 Widener Building

RELAYING RAILS

30,000 feet—90 lbs, per yard
22,500 feet—60 lbs, per yard
14,000 feet—70 lbs, per yard
With necessary angle bars,
novels—Locomotives—Cars—Hallway and
Contractors Equipment.

E. C. SHERWOOD w York, N. Y.

RAILS

TRACK EQUIPMENT

W. C. BRIDDELL CO., Inc. BALTIMORE.

IRON - STEEL SCRAP

RAILS

Complete stock 16 lb. to 100 lb. sections Prompt shipment

Write-Wire or Telephone LOUIS COHEN & SON Wilkes-Barre, Pa,

STANDARD RAIL & STEEL COMPANY 217 Cass Ave., St. Louis, Mo.

LOCOMOTIVE CRANES FOR SALE

Phone Locust 4816

- 1-Browning 15-ton 8-wheel 46 ft. boom, double
- drums.

 Browning 4-wheel electrically operated.

 Industrial 15-ton 3-wheel.

 Industrial 7½-ton 4-wheel.

HOISTING MACHINERY COMPANY 50 Church Street - -New York

LOCOMOTIVE CRANE

-25-ton, 8-wheel Industrial Type H, built 1918. A.S.M.E. boiler, 50-ft. boom, double drums, thoroughly overhauled. Excellent condition.

GREY STEEL PRODUCTS CO. New York, N. Y. 111 Broadway

65 Ton Baldwin Locomotive

For Sale

One (1) second-hand Baldwin Locomotive. Total weight 65 Tons. Cylinders 20x24 inches. Overhauled and repaired to stand United States. Government inspection. 165 lbs. per square inch steam boiler

W. J. OLIVER Knoxville, Tennessee

RAILS NEW & RELAYING

stock near you

Robinson & Orr Pittsburgh, Pa. N. w Frors and Switches at low prices.

FOR SALE

- 1-Barber-Greene loader, 3 months old
- 1-Barber-Greene loader, one year old
- 2-21E Foote paving mixer
- 10-ton three wheel Kelly-Springfield Roller
- 10-Fords with one yard bodles,, 3 months ald
- 1-15-ton Bucyrus locomotive crane, 1918 2-No. 3 Keystone shovels
- Above equipment located at Norfolk, Va.

Norfolk Equipment Corporation 601 Bankers Trust Building, Norfolk, Va.

HARRY BENJAMIN
EQUIPMENT CO.

EX Central National Sank Bidg
St. Louis, Mo.

SPOT SHIPMENT

Let us Quote on your requirements of Rails

PRICES BELOW MARKET

We buy mixed industrial scrap and rails

Purchase Abandoned Plants and Railroads

BOLTS

SPIKES

New First Quality

RELAYING RAILS TRACK ACCESSORIES

A large stock of good relayers in weights from 30 lb. to 90 lb. per yard for shipment as quickly as cars are placed for loading. Can ship complete with necessary splice bars, angle bars, bolts and splices.

FOR SALE

FOR RENT

TRENCH EXCAVATOR PARSONS MODEL "36" New Machine

Will dig to maximum depths of 9, 12 or 15 feet as may be desired.

HOLLANDER EQUIPMENT CO. 10 E. 43rd STREET NEW YORK, N. Y.

LOCOMOTIVE CRANES

1—20 ton McMyler 8 wheel M.C.B. bucket drums. 40 ft. hoom.

NEW TRACTION CRANES
Full revolving Road Cranes 7 ton capacity % yd. bucket.

STEAM SHOVELS

1—Marlon model 28 % yd. dipper, traction wheels shop No. 3328.

1—0sgood No. 18 equipped with 30 ft. boom for clamabell work.

LOCOMOTIVE American 6 wheel switcher, cylinders 18x2* drivers 4* wheel base 11' 6*, weight 60 tons.

ASPHALT PLANT

1—Iroquois 1250 yd. Road Asphalt plant Complete.

ROAD ROLLER

1—Kelly-Springfield 10 ton 3 wheel D.C. Steam Roller.

Steam Roller.

Set Wickes rolls, 10' 6* between housing 14* plate, Outer roll 20*, Inner rolls 16*.

CRUSHER OUTFIT

1—Gates 18-K: 60*x20* revolving acceens.

rolls 16 ... CRUSHER OUTFIT

1.—Gates 18-K; 60"x20' revolving screens;
42" bucket elevator 80 ft. centers.
We carry in stock concrete mixers,
air compressors, hotsting engines,
buckets, pipes, cars and other equipment and machinery.
F. MAYER

63 W. Jackson Bivd. Chicago, Ill.

RAILS ALL WEIGHTS
Let us know your needs. We may have material

WE BUY RAILS FIT TO RE-LAY

RAILS RELAY NEW

650 Tons 56-Lb. Rail 150 Tons 35-Lb. Rail

SINGER IRON & STEEL CO. 506 First Nat'l Bank Bldg., Houston, Texas

RAILS NEW AND

Track Accessories

NATIONAL STEEL RAIL CO. I. H. COHN, President Third National Back Bldg. St. St. Louis, Mo.

RAILS IN STOCK

With Angle bars to match all sections. Wire or write for prices.

M. K. FRANK FRICK BUILDING PITTSBURGH, PA.

The West Va. Rail Co. HUNTINGTON, W. VA.

Manufacurers Light Steel Rails 12, 14, 20, 25, 30, 35, 40, 45 lbs. per yd. We are also dealers in Relaying Rails. All Sizes

RAILS

60-70-80-85 lb. relayers

FROGS & SWITCHES

70-80-85 lb. frogs, switches, guard rails, stands, etc.

ROAD MACHINERY

Pavers, mixers, rollers, shovels, cranes, crushers, etc.

HENRY LEVIS & CO.

Philadelphia, Pa. Commercial Trust Bldg.

EQUIPMENT FOR SALE

CHARLES T. EASTBURN
Room 803 Broad St. Bank Building
TRENTON, N. J.

MARION STEAM SHOVEL FOR SALE CHEAP

1 cu. yd. railroad type, boom-swing, in good condition, near New Bern, N. C. Price \$4,000.00

1100 Garrett Building, Baltimore, Md.

FLAT CARS

800 flat cars, standard gauge, 36 to 40 ft. capacity 40,000, 50,000, 60,000 and 80,000 lbs.
35 gondola cars 60,000 and 80,000 lbs. capacity 25' 7" to 36' long, one and four board high, flat and hopper bottom.
15 box cars, standard gauge, 36 ft., 50,000 lbs. capacity.

All equipped with air and hand brakes. HENRY A. HITNER'S SONS CO.

Philadelphia, Pa.

CONSTRUCTION MACHINERY

d.

Concrete Mixers Locomotives Tractors

Steam Shovels Drag-Lines

A complete line of Construction Machinery available at all times. Write, Phone or Wire your inquiries and they will receive prompt attention.

ALFRED J. FORSCHNER

Real Estate Trust Bldg.

Philadelphia, Pa.

STEAM SHOVELS FOR SALE

1—Eric Type "A" ¼ yd. steam shovel. Only used 90 days 1—Eric Type "B" high lift ¼ yard steam shovel.

Bucyrus 14-B steam shovel on Caterpillars. Rebuilt.

1... Rrowning 50-ton locomotive crane. New 1918. Used about two years.

Ask for our complete list of STEAM SHOVELS, LOCOMOTIVES and CARS.

DEMPSTER EQUIPMENT CO. DEMPSTER BUILDING

KNOXVILLE, TENN.

SECOND-HAND MACHINERY CONTRACTORS, EQUIPMENT

Stacks-Tanks-Pipe, etc.

What are your requirements HENRY A. HITNER'S SONS CO.

4501 RICHMOND ST.,

PHILADELPHIA, PA.

DRYERS CRUSHERS — GRINDERS — PULVERIZERS

For All Furposes PLANTS DESIGNED AND EQUIPPED

W. P. HEINEKEN

Engineer and Manufacturer

95 Liberty Street

New York

AMERICAN MACHINERY EQUIPMENT CO.

Drying, Grinding, Crushing, Mixing, Pulverizing, Oil Mill, Fertilizer Plant and Power Equipment.

Foregoing in NEW and high grade USED machines Cast Iron Heating Boilers, Wrought Iron Boilers, Automatic Air Valves and Steam Specialties.

P. O. BOX 292, CHARLOTTE, NORTH CAROLINA

Blue Book of Southern Progress

A rich and stimulating volume it is, valuable to the investor, of daily use to the able to the investor, or daily use to the business man, and exceedingly helpful to student and educator. In thoughtfully compiled records like this is much of the meat of history; and truly may it be said of this one that it is a book, not only to be tasted, but to be "chewed, swallowed and digested."

-Atlanta Journal.

Single Copies 50c

Manufacturers Record, Baltimore, Md.



IS YOUR HAULAGE SYSTEM UP TO DATE?

Carrying coal out of your mine by man power in baskets would soon finish your production, wouldn't it? Yet hauling coal out over antiquated, cheap trackage is hardly less foolish. Breakage, derailments, and other accidents hold your production far below what it should be.

"CINCINNATI" correctly designed, carefully built track equipment will eliminate many of these troubles and show real steady increase on your production chart.

"CINCINNATI" engineers will be glad to assist you with your haulage problems.

CINCINNATI FROG & SWITCH CO. CINCINNATI, OHIO

Representatives:

The Herbert Crapster Co., Inc., 1 Madison Ave., New York City. T. H. Edelblute Co., 302 Wabash Bidg., Pittsburgh. Mr. F. K. Holmestead, Charleston, W. Va.

HENRY H. BABER

NEW and RELAY RAILS

Logging Equipment, Track Materials and Supplies LOCOMOTIVES, CARS, STEAM SHOVELS and CRANES

Dickson Building

NORFOLK, VA.

Locomotives, Steam Shovels, Locomotive Cranes, Care, New and Relaying Rail

WE HAVE FOR SALE

40 Standard and 36" Gauge Modern Direct-connected Locomotives, in all types and weights from 8 to 75 tons.

10 Standard and 36" Gauge Gearet Locomotives all weights.

15 Steam Shovels and Locomotive Cranes of different types and sizes.

3000 tons Relaying Rails, all sizes, on our Birmingham yards.

100 sets 35 and 40-1b Frogs and Switches; good as new.

Birmingham Rail & Locomotive Co. BIRMINGHAM, ALA.

KILBY FROG & SWITCH COMPANY

BIRMINGHAM, ALABAMA

Manufacturers

FROGS, SWITCHES, CROSSINGS, Etc.

THE WEIR FROG CO.

Manufacturers of

Frogs, Switches, Crossings, Rail Braces, etc. CINCINNATI, OHIO

Manufacturers of Balkwill Articulated Cast Manganese Crossings

d

E

d.



A Type for every project



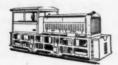
A Size for every job

LOCOMOTIVES

Gasoline
Storage Battery
Trolley
Combination

The Thousands of Whitcomb Locomotives in successful operation speaks for the thoroness of their design and construction.





Write for Bulletins covering the Type you are interested in.

Geo. D. Whitcomb Company Rochelle, Illinois, U. S. A.

STEEL BINS

For Sand, Gravel, Cinders, Coal, etc.



Capacity 70 Cu. Yds.

The steel bins we illustrate herewith measure 10' x 12' x 15' and have a capacity of 70 cubic yards. Height over all 21'. Truck clearance is 10' as illustrated. These bins are particularly adapted for Road Contractors. Material Yards and Coal Yards. The photograph indicates what a great time and labor saver they are, as trucks can be loaded in a very short time and eliminates double handling. Their portability is an added feature as they are all bolted together in the field, no hot rivets being required. They are far superior to wood which soon decays. Price f. o. b. Chicago \$695.

We also manufacture a bin with a hopper bottom having a capacity of 80 cubic yards with one opening. Essentially the same construction as the flat bottom bin. Price, \$795.00 f. o. b. Chicago.

HARRIS BROTHERS CO.

1349 West 35th Street, Chicago, Ill.





Wire Rope and Wire

Used Successfully Since 1840

John A. Roebling's Sons Company TRENTON, N. J.

BRANCHES:

New York Boston Chicago Philadelphia Pittsburgh Cleveland Atlanta San Francisco Los Angeles Seattle Portland, Ore.

...........



WOOD DRILL WORKS

Paterson, N. J.

ROCK DRILLS
ALL SIZES

and

for all purposes
WRITE FOR PRICES



KEATOR SAFETY CLIP

Guaranteed to take the place of any four common clips. Will not cut the wire rope or permit it to slip.

Sample furnished on request

MAL-GRA CASTINGS COMPANY

Manufacturers of high grade malleable castings
CAMBRIDGE CITY, INDIANA



COMPRESSED AIR RELIABILITY

You can depend on Sullivan "WG-6" Compressors

At the Duncan, Oklahoma, Water Works, a Sullivan "WG-3" compressor two years old ran steadily from Sept. 1 to Dec. 26, 1921, at 280 r. p. m., against 130 lbs. pressure in air lift service, pumping 75 gallons per minute against a lift of 430 feet. The ordinary rating of this machine is 100 lbs. working pressure and 235 r.p.m. This very great overload was handled without the slightest delay or trouble.

Stocked in sizes 50 - 500 cu. ft.
Send us your orders. Bulletin 1277-E

SULLIVAN MACHINERY COMPANY 122 So. Michigan Ave., Chicago



The "Jackhamer" operates efficiently and economically without time and money wasting breakdowns. It does your work more quickly and at less cost.

The "Jackhamer" is made in five sizes—one for every type of rock drilling work.

Request Bulletin No. 4046.

INGERSOLL-RAND CO., 11 BROADWAY, NEW YORK

Ingersoll-Rand



AMERICAN WIRE ROPE

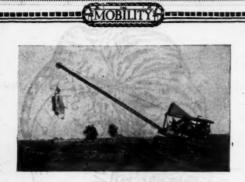
Send for Special Illustrated Catalogue

AMERICAN STEEL & WIRE COMPANY

Complete stocks of Bright and Galvanized Ropes, Wire Strand and Electrical Wires carried at our Warehouses.

BALTIMORE, MD.

Sales Office and Warehouse: 32 South Charles Street



A money-maker all week long-

THE minute a dragline stops working it ceases to pay dividenda—that's why the Northwest Crawler Dragline has won great confidence. The Northwest has positive traction in both treads of the crawler and, therefore, steers and runs like a truck over broken ground and steep grades. Loads and unloads to and from flat car without dismantling. Acts as dragline, crane or pile driver; right at home on any job. Handles % or 1 yard bucket on 35 or 40 foot boom, and its greater speed gives it capacity in excess of larger, more expensive machines. Ask for details.

Northwest Engineering Co. Works: Green Bay, Wis. General Sales Office: 28 E. Jackson Blvd., Chicago

CRANE DRAGLINE SHOVEL

Four Miles Illinois standard concrete road constructed in Forty Days with an

O. S. Dependable Crane

for handling the Materials.



The O. S. 7-Ton Steam Crane with Dependable Crawling Tread

Orton & Steinbrenner Co.

Offices arborn St., Chicago



RIE Steam Shovels

For road grading; handling road mater-tals with clamshell bucket; cellar and trench excavation; excavating sand and gravel, etc. We will be glad to send photos and data, showing just what the ERIE Shovel is doing on these classes of work. Write for Sullatin. "R"

ERIE STEAM SHOVEL CO., ormerly Ball Engine Co., Erie, Pa., U. S. A. Builders of ERIE Shovels and Cranes



CRUDE SULPHUR

For use in Metallurgical field, Fertilizer, Pulp, etc. THE UNION SULPHUR CO.

Frasch Building, 33 Rector Street, New York City

Thor PNEUMATIC TOOLS ELECTRIC DRILLS

TIME IS YOUR ONLY POSSESSION — DON'T WASTE IT.
One man with one Thor Tool will do more work than ten men by hand.
BE RIGHT THE FIRST TIME—USE THOR TOOLS.
INDEPENDENT PNEUMATIC TOOL COMPANY
600 WEST JACKSON BOULEWARD CHICAGO

BOSTON ST. LOUIS

PHILADELPHIA BIRMINGHAM

PITTSBURGH SAN FRANCISCO





Drive Your Crane To Work!

Byers "Truckrane" can be driven to work just like any automobile, time and expense on every job. One owner recently refused \$58.66 per day for a two weeks job in Chicago. Ask for "Truckrates"

THE BYERS MACHINE COMPANY
240 Sycamore St., Ravenna, Ohio
Builders of Pull Circle Cranes, "Autocranes," Buckels, Hoists, etc.



The Pyramids of Gizeh

Herodotus records that 100,000 workmen toiled for a generation to build the great Pyramids of Gizeh, tombs for Egypt's kings.

Cubes of stone as large as ten feet were quarried by driving wooden wedges into grooves in the rock and then soaking them with water. The swelling of the wedges cracked the stone which was transported to the Nile over mountains and valleys on water-bound, rock roads similar to macadam roads.

Explosives have replaced slave labor and have made possible the economical production of ore, coal, and rock products required by modern civilization. But in choosing the most economical explosive for each job there still remains an opportunity to prevent waste.

There is no explosive that is universally the most economical, but Hercules Special No. 1 often reduces blasting costs. We have recommended it for several years because it contains about 35 percent more cartridges per box than 40% extra dynamite, which it frequently replaces cartridge for cartridge, thereby reducing blasting costs approximately 25 percent.

Hercules Special No. 1 contains nothing but the highest grade of standard materials. Its wide use for years is proof of its economy and dependability. We will gladly tell you whether it is suited for your work.

Our new book, "Eliminating Waste in Blasting", was written to help you reduce blasting costs. Write to our Advertising Department, 947 King Street, Wilmington, Delaware, for a free copy.

HERCULES

POWDER

Allentown, Pa.
Birmingham, Ala,
Buffalo, N. Y.
Chattanooga, Tenn.

Chicago, Ill. Denver, Colo. Duluth, Minn.

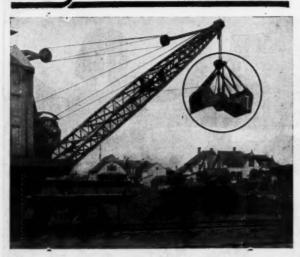
Hazleton, Pa. Huntington, W. Va. Joplin, Mo. Los Angeles, Cal.



COMPANY

Louisville, Ky. New York City Norristown, Pa. Pittsburg, Kan. Pittsburgh, Pa. Pottsville, Pa. St. Louis, Mo. Salt Lake City, Utah San Francisco, Cal. Wilkesbarre, Pa. Wilmington, Del.

Hayward Buckets



Two Score Years in the Ring

Over 40 years of bucket experience are represented in that ring. When you buy a Hayward Bucket, you do more than acquire a mere piece of mechanism. You get the cumulative experience in design, operation, and constructive ability of engineers who have devoted a lifetime to just such problems as yours. In every instance your knowledge, plus their specialized skill, means the placing at your service of an installation that excels in labor and time saving.

The years of use that are back of each old Hayward Bucket mean years of use ahead of every new one-you buy experience with Hayward products, but you don't pay for it. Buy more than just a bucket -buy a Hayward.

Catalog 43 is an interesting photographic and text story describing the constructional advantages that keep-Hayward Buckets "In the Ring." It's yours for the asking.

THE HAYWARD COMPANY 50-52 Church St., New York, N. Y.

Clam Shell Orange Peel



Drag Scraper Electric Motor

Trade HAYCO Mark



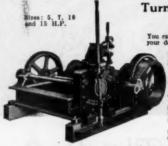
NATION

Hoists Derricks Pile Hammers

Send for Catalogs

National Hoisting Engine Co.

Office and Works: Harrison, New Jersey



Turn Waste Minutes Into Money

You can save time, labor and fuel or your derrick work by installing

DAKE SWINGING

catalog and full particulars.

DAKE ENGINE COMPANY, GRAND HAVEN

Agents—New York: A. Judson Brown & Co., Inc., 59 Pearl St, Chieago:
J. E. Chisholm, S19 Monadnock Blk. St. Louis: Wm. C. Johnson & Sons Machinery Co. San Francisco: Harron, Blosard & McCone.



A FLORY HOIST FOR EVERY PURPOSE S. FLORY MFG. CO., BANGOR, PA.

96 Liberty St., New York Monadnock Block, Chicago, Ill. Chas. T. Lehman, Birmingham, Ala. rquhar Machinery Co., Jacksonville Fla Sanks Supply Co., Huntington, W. Va. House Bldg. – Pittaburzh



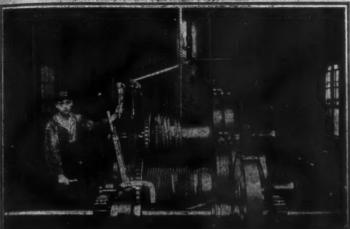
CRANES **EXCAVATORS** LAND DREDGES

CITY DREDGE WORKS

BAY CITY, MICH.







STEAM - ELECTRIC GASOLENE

For all Contractors' Uses

They do the work

Illustration shows rk on piers for

DERRICKS-PILE DRIVERS-CABLEWAYS

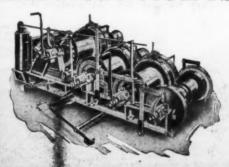
OUR ENGINEERS ALWAYS AT YOUR SERVICE

LIDGERWOOD MFG. Co., 96 Liberty Street, N

BRANCHES

Philadelphia Pittsburgh Chicago Cleveland Detroit Charleston, W. Va. Los Angeles S

ELECTRIC HOISTS



HE material handling hoist Shown embodies all the improvements made on our steam hoisting engines. It is equipped with our improved swinging drum and patented automatic brake making it safe in the hands of inexperienced

WRITE FOR BULLETIN

J. S. MUNDY HOISTING ENGINE CO. NEWARK, NEW JERSEY

Stroudsburg = Quality

Standardized the 125 Lbs. Pressure Hoisting Engine

LIKE PUTTING MONEY IN THE BANK

Buying a Stroudsburg Hoisting Engine is a "Gilt Edge" Invest-ment. It will earn you greater profits and help you to finish the job on time. Breakdowns are rare with the Stroudsburg. are rare with the Stroudsburg. If from constant use some part should wear out, our duplicate part system enables you to make the engine "ready for running" with very little delay. This is important.

"Built for the Man That Wants the Best" Built for every purpose

STROUDSBURG ENGINE WORKS Office and Works: No. 64 N. 3d St., Stroudsburg, Pa.



To left—Same type machine with Shovel Attachment.

Below-Same type machine with Skim-mer Scoop.

Are You Making Maximum Profits on Your P&H Investment?

If you have a P & H working on dragline excavating or material handling have you realized the added profit gained through putting these machines to work on other jobs?

By replacing the crane boom with the Shovel Attachment, you have a powerful shovel at a cost of the attachment only. The P & H Gas Shovel has a patented crowding motion which with the availability of the entire capacity of the motor accomplishes results never before accomplished with shovels.

The entire power of the 50 H.P. motor of the P & H 206 is available for any of the four movements-crowding, hoisting-swinging or traveling.

The Skimmer Scoop digs up pavement, grades roads, and takes care of shallow excavation work that keeps a train of trucks and wagons busy.

These and other applications of P & H Corduroy Cranes are illustrated in Bulletin 57-X. We have a copy for you.

Excavating Machinery Division

PAWLING & HARNISCHFEGER CO.

Established in 1884

3827 National Ave., Milwaukee, Wis.

New York Pittsburgh Phoenix

Birmingham New Orleans Portland Seattle Atlanta





CORDUROY CRAN

Be the job great or small, in rock, sand or earth, above ground or underground, there is an Osgood built for it.

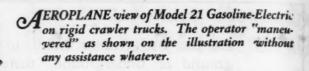
With capacities ranging from ¾ to 6 cu. yds., mounted on continuous Tread, Traction or R. R. Trucks and operated either by steam or compressed air, they offer a very wide range of selection that will satisfy the most exacting requirements.

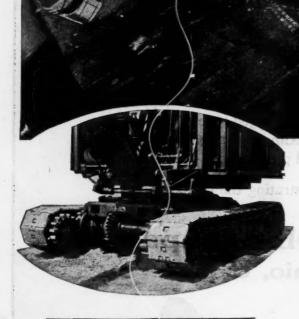
Below is illustrated an Osgood 69, 3 cu. yd. dipper, mounted on railroad trucks, engaged in stripping work. Note the rugged construction of the A frame, boom, dipper and dipper handle. The same strong rugged type of construction is used thruout insuring the maximum of strength and power as well as a well balanced and proportioned machine.

Write for general catalog illustrating the Osgood line.

The OSGOOD Company Marion, Ohio, U. S. A.







V/HEN we say the rigid type crawlers on the New 21 are steered altogether from the cab we mean that we go just a step farther than the usual practice in power steering. Ours is a design in striking contrast with the construction of steam shovels that "steer from the cab" but whose steering connections must be operated from the ground.

Steers Entirely from the Cab

On the New 21 the operator does not leave the cab nor need outside assistance connecting and disconnecting hains, bars or clutches. All that is necessary is to operate a handy lever inside the cab that enables the shovel to be steered in any direction.

For towing, a special device is used by which all clutches are disengaged permitting the crawlers to run free. If you would like to know more about how Marion Shovels are steered entirely from the cab ask us for copies of bulletins 228 and 305.

Check These Important Features Why the New 21 Steers Entirely From the Cab

- 1. The control lever inside of cab connecting with reach rods.
- 2. The reach rods connecting lower end of control lever with rock shafts at both front and rear ends of rotating frame.
- 3. The four arms on rock shafts that drop down in line with arms extending upward from lower frame and against which coil springs operate.

WITH THIS CONTROL THE NEW 21 CAN BE STEERED FROM INSIDE OF CAB IN ANY DIRECTION AND WITHOUT ANY OUTSIDE ASSISTANCE WHATEVER.

The Marion Steam Shovel Company Marion Ohio.

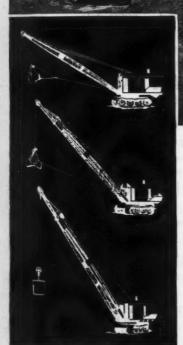
Marion Crawler Trucks Make Hard Going Edsy



BUCYRUS



SHOVEL - DRAGLINE



For work calling for a Revolving Shovel or Dragline of the heavier class.

As a shovel, equipped with 11/4 to 2-yard dippers and 26, 30 and 33-foot booms.

As a dragline, with 45 to 60-foot booms and 1½ to ¾-yard buckets.

Also as a clamshell machine, crane, sewer shovel, etc. The last word in a heavier universal shovel for general contracting, quarry, clay plant, metal and coal mining requirements.

SEND for ILLUSTRATED BULLETIN TODAY

BUCYRUS

Established in 1880

A Special Plant Devoted Exclusively to Small Revolving Shovels Railread Type and Revolving Shovels of All Sizes, Dragline Excavators, Tranch Excavators Dipper, Hydraulic and Placer Dragles, Spreader Plows, Wracking Cranes, Etc.

BUCYRUS COMPANY, SOUTH MILWAUKEE, WIS.
NEW YORK CHICAGO BIRMINGHAM SAN FRANCISCO PORTLAND DENVER

Clip this Coupon and Mail to Nearest Office

Date.

BUCYRUS COMPANY:

Please mail me your Bulletin C-501M, describing your 50-B UNIVERSAL SHOVEL.

Name

Address



Walking

A feature exclusive to Monighan Excavators which the contractor must see in action but once to appreciate.

Over any ground-soft, muddy or rough, it "walks" the excavator without planks, skids, track or trackmen.

Labor cost is cut, more material handled and the whole job speeded up.

Catalog No. 17 explains these advantages in detail. With it we will send you the name of the user nearest you if you wish it.

MONIGHAN MACHINE CO. 2024 CARROLL AVE. Chicago, Ill.

BUILD A ROAD THAT RESISTS BOMBARDMENT

When the mighty guns on the Western front hurled broadsides of ponderous steel projectiles the turrets and forts, regarded regarded as impregnable, crumpled like cardboard.
The result was a resort to earth trenches and embankments. Why? Because the only resistance possible was that of absorbing the shock instead of defying it. The same principle dictates shock absorbers and pneumatic tires for automobiles and trucks to protect the vehicle and its load. Our streets and roads must withstand the bombardment of more than four million truck wheels. The shock absorber in this case is the asphalt wearing course whatever the base. Asphalt,—resilient, dustless, noiseless, waterproof, wearproof,—the pavement of Broadway, Fifth Avenue, Michigan Boulevard, Broad Street, and Pennsylvania Avenue, is the last word in modern pavement design and is no more costly than a rigid unprotected pavement. same principle dictates shock absorbers and rigid unprotected pavement.

Write for Brochures, Circulars and Specifications

THE ASPHALT ASSOCIATION

25 W. FORTY-THIRD ST. NEW YORK CITY

Albany, N. Y. Atlanta, Ga. Chica Newark, N. J. Raleigh, N. C. Chicago, Ill.

C. TURNER CO.

MACHINERY CONTRACTORS EQUIPMENT

JAMES BUILDING CHATTANOOGA, TENNESSEE

CUMMER ASPHALT PLANTS

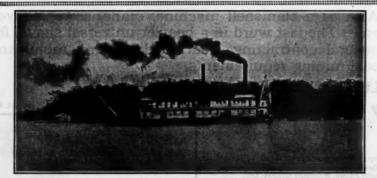
All Types and Sizes

THE F. D. CUMMER & SON CO. CLEVELAND, OHIO.

The Columbus McKinnon Chain Company Columbus, Ohio

Manufacturers of all kinds of Chain

Southern Offices: 311 Wells Farge Bidg., New Orleans, La.
Box 158, Jacksonville, Fla. Southwestern Life Bidg., Dall a, Tex-



DREDGING

Filling, Land Reclamation, Canals and Port Works

River and Harbor Impro-Deep Waterways and Ship Channels

We are especially equipped to exe-cute all kinds of dredging, rec-lamation and port works in Southern waters.

CONTRACTORS TO THE FEDERAL GOVERNMENT

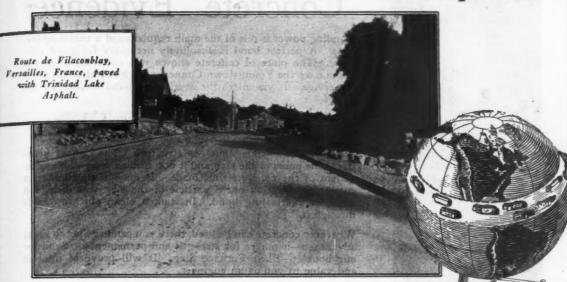
Correspondence Invited from South-ern Officials and Corporate and ivate Interests Everywhere.

Largest Plant Longest Experience

NEW YORK - ATLANTIC, GULF AND PACIFIC COMPANY - HOUSTON Scanlan Bldg. 21 Park Row

22.

Around the World on Native-Lake Asphalts



Trinidad in France

Pounded by heavy, war-time traffic—day after day, month after month-without damage! That's the record of Trinidad Lake Asphalt paving on the Route de Vilaconblay, Versailles, France.

Thousands of the splendid streets and highways in all parts of the world-prove the durability of Trinidad and Bermudez native-lake asphalt pavements under the most severe conditions of climate and traffic.

Sun-baked, wind-swept and storm-beaten for ages in the tropics, these nature-made asphalts have been seasoned and toughened for long-lasting, economical service on modern streets and highways.

Quality streets and quality roads demand quality pavings. Trinidad and Bermudez pavements are attractive, resilient, noiseless and last for years with little or no cost for repairs.

> Write at once for booklets describing these remarkable, age-old materials.

New York Chicago Pittsburgh

THE BARBER ASPHALT COMPANY

St. Louis Kansas City San Francisco



London V Lille, France Versailles, France Frankfurt, Germany Bombay, India

San Paulo, Brazil

Mar Del Plata, Argentine Republic

Mercedes,

Johannesburg, S. Africa Rio de Janeiro, Brazil

Argentine Republic

FRINIDAD AND BERMUDEZ

THE NATIVE-LAKE ASPHALTS

any

hain

s, Tex.

als

L

Ilde.



oncrete Evidend

Bonding power is one of the main requisites of a coarse aggregate. A perfect bond is absolutely necessary for good concrete. The piece of concrete shown was cut from a section taken from the Youngstown-Conneaut Highway after six years in service. It visualizes the everlasting bond secured by the

Blast Furnace Slag

Slag is porous-spongelike-in structure. The cement penetrates the pores of the slag and it becomes an inseparable component of the concrete thus made. It may be noted that in cutting this section not a particle of the slag was dislogded from its everlasting bond. Instead, a clean cut was made through it.

Wherever concrete can be used, there you can use Slag to great advantage-it makes for strength and permanency. Send for our booklet-Blast Furnace Slag. It will prove of interest and value to you as an engineer.

Slag for Better Concrete

Carnegie Steel Company SENERAL OFFICES: CARNEGIE BUILDING, PITTSBURGH, PA.

How many hours to your market?

It is no longer a question of mileage aloneit is more a question of roads. City to cityplant to market depends on roads-and roads are most efficient when made of

Warrenite-Bitulithic Pavement

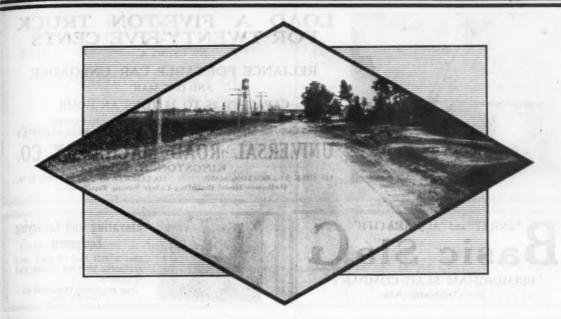
Built by experts from tested materials according to proven formulas, this pavement is giving uniformly satisfactory service even where soil conditions have made road problems unusually perplexing.

> Interesting booklets about this pavement are yours for the asking



WARREN BROTHERS COMPANY EXECUTIVE OFFICES: BOSTON, MASS.

alt Lake City, Utah



The Road of Concrete

is the Road of Today, Tomorrow and Always

Good roads open up opportunities. The almost daily increase in transportation and traveling by automobile demands that the facilities be up to the highest standard. Concrete stands up under the heaviest traffic and has long proven its value as an economic and permanent road material.

A section of concrete road built under Federal Aid Project No. 632, North Carolina State Highway is shown above. It is 8½ miles long, constructed under the supervision of Frank Page, Chairman State Highway Commission and Chas. Upham, State Highway Engineer. The general contractors were Davis Wilcox Construction Co., Spencerville, Ohio. Clinchfield Portland Cement was used in its construction.

When ordering cement for road or building work specify Clinchfield and get the best.



CLINCHFIELD

Portland Cement Corporation

Office and Mills:

KINGSPORT, TENN.



LOAD **FIVE-TON** TRUCK FOR TWENTY-FIVE CENTS

BY USING A

RELIANCE PORTABLE CAR UNLOADER

AND ONE MAN

CAPACITY 25 TO 35 TONS AN HOUR

BEARS THE USUAL GENEROUS RELIANCE GUARANTEE DELIVERIES MADE PROMPTLY PRICES QUOTED WILLINGLY

UNIVERSAL ROAD MACHINERY CO.

KINGSTON. N. Y.

MILK ST., BOSTON, MASS. 114 LIBERTY ST., NEW YORK N. Y. Reliance Road Building-Labor Saving Equipment

'ENSLEY" and "ALABAMA CITY"

BIRMINGHAM SLAG COMPANY Birmingham, Ala.



Elevating and Conveying Equipment

also a full line of steel and malleable buckets, chain and sprockets.

THE COLUMBUS CONVEYOR CO.
Columbus, Ohio

COPPER FURNACE

FOR:-ROADS, CONCRETE, ETC. TENNESSEE COPPER COMPANY COPPERHILL, TENNESSEE





MR. TAX-PAYER-YOU!

Do you want your county to spend YOUR good money on roads that will wear out before your bonded indebtedness is liquidated? I SAY YOU DON'T.

What you want is a hard-surfaced road, with little cost for maintenance-a road that can be traveled in rain or snow, summer and winter. You want a PERMANENT road—that means CONCRETE!

Write for Literature-It's Free DIXIE PORTLAND CEMENT CO. CHATTANOOGA, TENN.

Southern States Portland Cement



We produce only one grade

THE HIGHEST

ALWAYS UNIFORM

Southern States Portland Cement Co.

Office and Mills-ROCKMART, GA.

National Cement Company Manufacturers of

High Grade Portland Cement



QUALITY and SERVICE **Our Motto**

Sales Departmen Building - Birm Plant

Building

Concrete

Paving

WASHED GRAVEL

In Car, Scow and Barge Lots

THE ARUNDEL CORPORATION

BALTIMORE, MD.

Office: PIER 2 PRATT STREET

Wharves: PIER 2 PRATT ST., AND FOOT OF FELL ST.

SAND AND GRAVEL

Petersburg Sand & Gravel Corporation Petersburg, Virginia

CONCRETE, BUILDING AND PAVING SANDS

Giant Portland Cement

Clean Washed Gravel in all sizes

SAND-GRAVEL-BRICK

Washed Sand for Concrete, Roads and Buildings, Brick and Plastering Washed Gravel All Sizes Building Brick

Shipments: Sand and Gravel from Petersburg, Va. Brick from Waverly, Va. FRIEND & CO. Inc. - River Street, Petersburg, Va.

RAPID SAND AND GRAVEL WASHER

LIGHT, SIMPLE AND DURABLE WASHER

Takes the dirt out of the sand and at the same time saves and makes money for you. Built of the very best materials,

principal wearing parts of manganese steel.

a lifetime.



BONNEY SUPPLY COMPANY

Incorporated 114 Livingston Bldg., Rochester, N. Y.

Henry H. Meyer Co., BALTIMORE

(With or without External Gratings)

A portable machine, daily capacity 5 to 7 tons.

This dryer has a low first cost, is easily and cheaply operated and guaranteed dry sand.

The low cost makes it valuable for companies needing dry sand on two or more jobs at the same time, thereby eliminating the handling cost of one point only.

Write for descriptive pamphlet

The Ripley Foundry & Machine Co. Ripley, Ohio









Less Payroll Outlay More Work Done!

That's the reason plant executives buy Haiss mechanical loading equipment for such companies as-

Remington Arms Co. Isco Chemical Co. Wright-Martin Aircraft

Co. Endicott-Johnson Co. H. W. Johns-Manville Co. American Sugar Refinery

Co.
Niles-Bement-Pond Co.
Butterworth-Judson Co.
Singer Manufacturing Co.

Malleable Iron Fittings Co. West Va. Pulp & Paper

Co.
J. B. Stetson & Company
H. J. Heinz Company
City of Atlanta (Ga.) Union Sulphur Co. Duriron Castings Co. B. F. Goodrich Co. Am. Rolling Mill Co.

They are saving the high cost of hand shoveling:the operation of their Haiss Loading Equipment costs only a fraction of the saving. And the mechanical equipment is more reliable than men ever were.

It is worth while to investigate the comparative costs of hand and mechanical loading. We have a wealth of data that will interest you.



The George Haiss Mfg. Company, Inc. 139th St. & Canal Place - - New York, N. Y.

ESTABLISHED 1892

Representatives throughout the world

nt

Co.

ny

nt

CE



TRAILERS for factory, warehouse and dock use with industrial tractors. Special trucks designed and built to meet individual requirements.

LUMBER HAULING EQUIPMENT—Log wagons and carts, lum-ber buggies, planing mill trucks and dollles. A truck for every lumber mill requirement.

TRACTION WAGONS for heavy hauling of all kinds, with bed or platform to suit requirements. 5 to 25 tons capacity. Many used in lumbering and mining.

SPECIAL MACHINERY MOUNTINGS for engines, boilers, crushers, mixers and portable machinery of all kinds, designed and built to suit the requirement.

STEEL WHEELS, steel and wood axles, any size and capacity for every requirement.



Write us fully about your hauling problem and let us suggest the proper equipment.

ELECTRIC WHEEL COMPANY 5 Ohio St., QUINCY, ILL.

DUMP THE LOAD WITHOUT ANY STRAIN

THE JENNINGS PATENTED LEVER AND TAIL GATE are special features which put the Jennings Dump Bodies in a class to themselves. By pulling the lever forward, the body dumps; by lifting the lever the body is brought back to the loading position. The lift required is about 30 lbs. JENNINGS, the Ideal Body for Ford Trucks.

Write for prices

Jennings Automatic Dump Body, Inc., ROANOKE, VIRGINIA





"ERIE" Tandem Steam Rollers for STRENGTH DURABILITY SIMPLICITY

ECONOMY of OPERATION and LONG LIFE Ask for Catalog "M"

ERIE MACHINE SHOPS

ERIE, PENNA., U. S. A.



It Stands Unequalled

for strength, durability and ease of operation. It dumps clear and clean.

Hinges are not malleable or cast iron, but are made of wrought steel.

Write for full particulars

ACME WAGON COMPANY

Kelly-Springfield Rollers



ROLLER WITH SCARIFIER

FOR MORE THAN 30 YEARS OUR ROAD AND STREET ROLLERS HAVE BEEN USED BY CONTRACTORS, CITIES, COUNTIES AND GOVERN-MENTS IN EVERY PART OF THE WORLD, ESPECIALLY IN THE SOUTHERN STATES.

In Addition to ALL SIZES AND STYLES-21/4 TO 20 TONS

Both Steam and Gasoline WE BUILD

SPECIAL MAINTENANCE ROLLERS

SPUR-GEARED TANDEMS

WRITE FOR CATALOG

THE BUFFALO-SPRINGFIELD ROLLER COMPANY SPRINGFIELD, OHIO, U. S. A.

1922.



Combination Auto Heater and Distributor



The latest improved and most practical equipment for heating and applying under pressure at temperature and in volume as desired, all varieties of bituminous materials for road construc-tion, highway maintenance and dust laying.

Send for complete catalog

KINNEY MANUFACTURING COMPANY MANUFACTURAL BOSTON, MASS., U. S. A. Chicago San Francisco

Philadelphia Kansas City

Chicago Houston

Asphalt Filler **Asphaltic Roadway Gravel Roofing Gravel**



AMERICAN LIMESTONE COMPANY McNutt Building KNOXVILLE, TENNESSEE

CRUSHED LIMESTONE Best for All Purposes

We manufacture all sizes of stone suitable for all classes of road building and concrete work where only a high-grade limestone is required.

Quarries opened up in 1912.

Capacity 4000 tons daily

Quarries:

Blue Ridge, Va. Pembroke, Va. Pounding Mill, Va.

W. W. BOXLEY & COMPANY

First National Bank Building, - ROANOKE, VA.



"Austin"

The Last Word in Steam Rollers

The Austin has all the good features common to steam rollers, and in addition has exclusive features of proven value which represent the greatest advance in steam roller construction in years, and add greatly to the operating efficiency of the roller besides saving money for its owner.

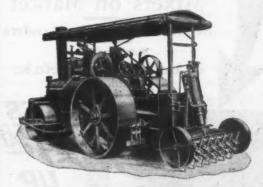
The chief feature of the Austin Steam Roller is its extra size boiler with greatly increased heating surface as a result of which the machine has plenty of power to operate a scarifier attachment or pull a separate scarifier. Other construction features which add to the roller's efficiency and life are:

The only single unit transmission. The only self-aligning engine.

The only boiler having no bolts or studs entering the steam or water spaces. Larger transmission bearings. Wider gear faces.

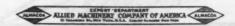
Austin Steam Rollers will measure up to your most exacting requirements, and then surprise you by how far they surpass them. These vollers are fully illustrated and described in Special Roller Catalog FM.

Write for your copy today.



The Austin-Western Road Machinery Co. Chicago, Ill.

"Everything from a Drag Scraper to a Road Roller"



M. R. AMERMAN

Fister L. Phillips Compar Oklahoma City, Oklahoma.

2666 ft. of Curb in 8 Hours

AGAIN Wonder simplicity, fast, thorough mixing and rapidity of POURING Discharge turns the trick.

This is a typical performance of Wonder Mixers and whatever the nature or size of your work may be, there is a Wonder to give continuous operation, big daily capacity and low upkeep costs.

It's to your advantage to obtain the new WONDER Catalog. Just a line will bring it without obligations.

CONSTRUCTION MACHINERY COMPANY



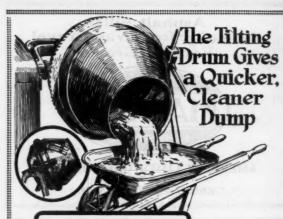
Fastest Discharging Mixers on Market

Several Sizes--Power Loaders

Write For Catalog

The American Cement Machine Co., Inc. Keokuk lowa





THERE is really just one way to get a batch of concrete out of the drum into the barrow—quickly, easily, completely, That's to pour it out.

The Jaeger tilting drum gets rid of a batch as quickly and easily as emptying a bucket of water. It doesn't dip. It filts and pours.—the only action for speed and economy. And those are the factors that spell profit on any concrete job.

Twelve thousand contractors use the Jaeger. They count on—and get—A MIX A MINUTE. Consider this in choosing your mizer. For every concrete job there's a Jaeger that exactly fills the bill. Write for our catalog today.

The Jaeger Machine Co.

115 Dublin Avenue



2.

IMPERIAL TONE CULVERTS



Installed 1911

This Toncan Metal Culvert is located near Monmouth, Maine. Water has been running through it since 1911. Temperature changes have been extreme. Yet, because Toncan Metal is anti-corrosive, it is still in good condition. Write for prices.

Deminion Metal Products Corp., Roanoke, Va. The Florida Metal Products Co., Jacksonville, Fla. The Berger Mfg. Co., of Texas, Dallas, Texas The Canton Culvert & Silo Co., Canton, Ohio

Riveted Steel Plate Tanks

8/16° to 1/2° thickness Pneumatic Water Supply, Hot Water & Air Receivers.

HAMBURG BOILER WORKS

HAMBURG, BERKS COUNTY, PENNA.



STORAGE TANKS

Absolutely Leak-Proof and Durable, for Oil and Gasoline

GENERAL STEEL PLATE WORK

SOUTHERN METAL CO., INC.

Lake Charles, La.



Serve all Industries and Municipalities SPRINKLER - OIL - MOLASSES - WATER SUPPLY

CHICAGO BRIDGE & IRON WORKS

ATLANTA NEW YORK DALLAS
1045 Forsyth Bidg, 3113 Hudson Terminal 1608 Practorian Bldg.



& Structural Steel Work PITTSBURGH - DES MOINES STEEL COMPANY CURRY BUILDING, PITTSBURGH, PA.



RAYMOND MFG. CO., Ltd. CORRY, PA.



SPRING SPECIALISTS

Carbon or vanadium steel, brass or bronze springs.

Engineering advice on your spring problems free Send for catalogue.

Road Rollers, Road Machinery, Culverts and Supplies THE GALION IRON WORKS & MFG. CO. GALION, OHIO

The Heltzel Steel Form & Iron Company Warren, Ohio

ROAD BUILDING EQUIPMENT FOR EVERY REQUIREMENT OF CONTRACTOR AND ROAD BUILDER WHAT DO YOU NEED?

We want to furnish you Fall Information on any Equipment in which you are into
Write or telegraph for Catalogue and Prices

THE SCOOP CONVEYOR



FOR STORING MO RECLAIMING CARS, TRUCKS AND WAGONS DOES THE WORK OF PROM 6 TO 12 MEN
AND KEEPS EQUIPMENT MOVE
WAITE POR LITERATURE

PORTABLE MACHINERY CO.PASSAIC N.J.

MACHINERY SHIP

Winches Capstans

Steering Engines

> Windlasses

NEWLY DESIGNED, HIGH EFFICIENCY LINE. THEY ARE "BUILT RIGHT AND RUN RIGHT." PRINTED MATTER ON REQUEST.

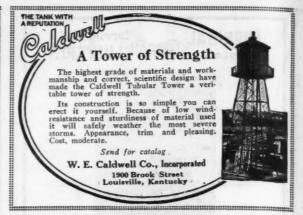
The Hadfield-Penfield Steel Co., Successor to The American Clay Machinery Co. BUCYRUS, OHIO

ESTABLISHED 1892

AIR-TIGHT STEEL TANK CO.



STEEL TANKS—For pressure or plain storage—riveted, welded, or genuine copper-brazed construction—the tightest, strongest, safest tank it is possible to construct by any known process.





STEEL TANKS and TOWERS

For Water Supply and Fire Protection

ANY SIZE ERECTED ANYWHERE

Manufacturers of BOILERS AND ENGINES

Write for prices

R. D. COLE MFG. CO.



-and-

General Fabricated Plate Metal Work

We Have in Stock, Ready for Shipment

11,000-Gal. Oil Storage Tanks

DOWNINGTOWN IRON WORKS

Office and Works: Downingtown, Pa.



TOWERS & TANKS

WALSH & WEIDNER Towers and Tanks are correct in design. Their simplicity contributes to their low cost of maintenance.

Our shop equipment includes the best for production, and our facilities for quick shipment are unexcelled.

Our estimate on your next requirements will save you money.

The Walsh & Weidner Boiler Co. CHATTANOOGA, TENN.

We Are Specialists

Years of experience place us in a position to make tanks for every purpose. Every tank made specially to order

The Jung Brewing Company reports that they installed a tank 32 years ago and it is still in service

Write for circular

HAUSER-STANDER TANK COMPANY CINCINNATI, OHIO

TYSRIPCH OFFICE. SAS Releval Blde



418 10th Street
CHATTANOOGA, TENN.

If made of Steel, we make it.

Tanks anywhere for any service.

Steel Riveted Pipe Standpipes Tanks on Towers

We make dye tanks and also manufacture special work for chemical plants





GEORGIA REFRACTORY CLAYS

Georgia refractory clays cover an area 225 miles long and from 20 to 50 miles in width. Many of the deposits can be worked with little or no industrial haulage.

The thickness of the deposits reaches as much as 40 feet with an overburden of 1 to 20 feet.

They have a high content of alumina and a low content of silica, alkalies and iron.

The Central of Geogia Railway made a co-operative agreement with the United States Bureau of Mines in 1921 for the laboratory and plant tests of these clays. The work is nearing completion and results will be published shortly.

It has been determined that certain of these clays will—

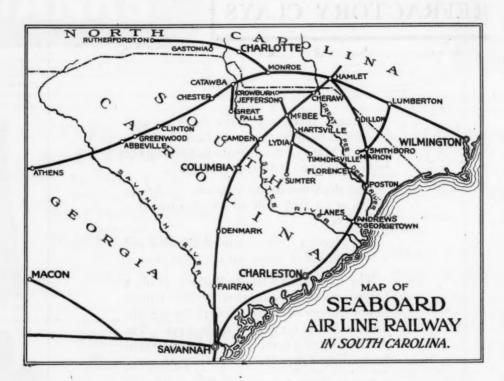
stand a higher temperature than true fire clays, pass spalling and load tests 100%, and are nearly neutral in basicity.

Pamphlets giving an outline of the resources and the preliminary tests mailed on application.

J. M. MALLORY, General Industrial Agent

Central of Georgia Railway Company Savannah, Georgia

South Carolina's Industrial Growth Offers Sound Basis for Future Expansion



South Carolina—from the mountain tops of the Appalachians on its northwestern border—over the Blue Ridge—across the rolling Piedmont Plateau—onto the broad Coastal Plain—thence to its ports on the Atlantic Ocean—is a state of remarkable activities and undeveloped possibilities.

Streams are being harnessed to a continually increasing extent to provide hydro-electric power to turn the wheels of industry. For over one hundred years South Carolina textile mills have manufactured cotton—today there are over 5,000,000 spindles, and nearly 115,000 looms representing about 1/6 of the spindles and looms of the entire country. In addition, there are numerous knitting mills as well as bleacheries and dye works.

Its fertilizer industry, in the forefront of all states,

stimulates the annual production of \$450,000,000 worth of farm crops.

Capital invested in manufactures totals \$375,000,000—the products manufactured aggregate around \$400,000,000 annually.

There are inexhaustible supplies of stone, granite and clay. Lumber and naval stores play an important part in the industrial activities of the State. Adequate home-grown labor—raw materials and hydroelectric power are alike available.

The Seaboard Air Line Railway crosses and recrosses South Carolina in several directions. All along the line there are abundant opportunities for the establishment of profitable industries, or prosperous farming enterprises.

Full co-operation will be extended those seeking further specific information about the opportunities in South Carolina as well as in other States traversed by this railroad.

JESSE M. JONES, General Development Agent

SEABOARD AIR LINE RAILWAY
Room 734 Royster Building NORFOLK, VA.

XUM

Classified Reference Index for Buyers

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

ACCOUNTANTS. (Certified Public.)
Black & Co., Baltimore, Md.
Bill, Norman A., Baltimore, Md.
Todd & McCullough, Charlotte, N. C. ACETYLENE GENERATORS.

Eentucky Oxygen-Hydrogen Co., Louisville.

AGRICULTURIST. (Consulting.) Morse Agricultural Service, New Orleans,

AERIAL TRAMWAY. Broderick & Bascom Rope Ca., St. Louis Leschen & Sons Rope Co., A., St. Louis AIR COMPRESSORS.

All Committee and Portable.
Construction Mchy. Co., Waterloo, Ia. J.
De Laval Steam Turb. Co., Trenton, N. J.
Domestic Engine & Pump Co., Shippens-Donestic Engine & Pump Co., onspreading to borg, Pa.
Dorg, Pa.
General Electric Co., Schenectady, N. Y.
Ingersoll-Band Co., New York, N. Y.
Punn, Pump & Comp. Co., Easton, Pa.
Sullivan Machinery Co., Chicago, Ill.
Wastinshouse Traction Brake Co., Wilmeding, Pa.
Worthington Pump & Mehy. Corp., N. Y.

AIR AND GAS COMPRESSORS.

AMMETERS.
Waston Electrical Instr. Co., Newark, N.J. AMMONIA VALVES AND FITTINGS.
Frick Co., Waynesboro, Pa.
Triumph Ice Machine Co., Cincinnati, O.
York Mfg. Co., York, Pa.
Vogt Mch. Co., Inc., Henry, Louisville.

ANNEALING BOXES.
Wilfong Iron Whs. Co., Millard P., Phila.

ANTI-FRICTION METALS.
Bailey-Lebby Co., Charleston, S. C.
Doige Sales & Engr. Co., Mishawaka, Ind.
More-Jones Brass & Metal Co., St. Louis.

APPRAISERS.
American Appraisal Co., Milwaukee, Wis, Robertson, Furman & Murphy, New York.

Robertson, Farman & August Architects.
Foulthoux, J. A., New York, N. Y.
Martel, F. E., Atlanta, Ga.
Milburn, Heister & Co., Wash'n, D. C.
Sirine & Co., J. E., Greenville, S. C.
Tumer Architectural Service, Ballo., Md.
Landscape.
Draper, E. S., Charlotte, N. C.
Willis, W. N., Spartansburg, S. C.

ARCHITECTS' SUPPLIES.
Starrett Co., L. S., Athol, Mass.
Weber Co., F., Philadelphia, Pa.

ARCHITECTURAL IRON WORK.
Chesapsake Iron Works, Baltimore, Md.
Districh Brothers, Baltimore, Md.
Dew Co., Inc., The, Louisville, Ky.
Snead Architectural Iron Wiss, Louisville.

ARMATURE AND FIELD COILS.
Chattanooga Armature Wks., Chattanooga ARMATURE WINDING. Charlotte Elec. Repair Co., Charlotte, N. C.

ART GLASS.
Ripawanger & Co., Memphis, Tenn.

ASBESTOS PRODUCTS.
Johns-Manville, Inc., H. W., New York

Asphalt Association, New York, N. Y. Barber Asphalt Co., Phila., Pa. Gulf Refining Co., Pittsburgh, Pa. Texas Co., The. New York, N. Y. Process.

Robertson Co., H. H., Pittsburgh, Pa. Kentacky Hock Asphalt Co., Louisville.

ASPHALT FILLER. Amer. Limestone Co., Knoxville, Tenn. Texas Co., The, New York, N. Y. ASPHALT HEATERS.

Kinney Mfg. Co., Boston, Mass. ASPHALT MIXERS. Erie Machine Shops, Erie, Pa.

ASPHALT PAVING PLANTS. Asphalt Association, New York, N. Y. Curamer & Son Ca., F. D., Cleveland, O. Warren Bros. Co., Boston, Mass.

AUCTIONEERS. mith & Jaffe, New York, N. Y. AUDITORS

Black & Co., Baltimore, Md. Hill, Norman A., Baltimore, Md. Bobertson, Furman & Murphy, New York. Todd & McCullough, Charlotte, N. C.

AUTOMATIC FIRE SPRINKLERS.

Bererley Heating Co., R. C., Richt Va. Grinnell Co., Providence, R. I.

ADRASIVE MATERIALS.

Carbonundum Co., Niagara Falls, N.Y.

AUTOMATIC TELEPHONE EXCHANGES

BELT CEMENT.

Du Pant de Nemer.

AUTOMOBILE ACCESSORIES.
Bailey-Lepby Co., Cnarleston, S. C.

AUTOMOBILE TIRES. Kelly-Springfield Tire Co., New York. AUTOMOBILE TRUCKS.

General Motors Truck Co., Pontiac, Mich. Packard Motor Car Co., Detroit, Mich.

BABBITT METAL. More-Jones Brass & Metal Co., St. Louis. BACKFILLERS.

Amer. Cement Mch. Co., Inc., Keokuk, Is. Austin Machy. Corp., Chicago Ill Buckeye Traction Ditcher Co., Findlay, O. Northwest Engr. Co., Chicago, Ill.

Trench.
Construction Machinery Co., Waterloo, Ia.

BALLAST. (Bailroad.) American Limestone Co.. Knoxville, Tenn Birmingham Siag Co., Birmingham. Ala. Tennessee Copper Co., Copperhill, Tenn.

BANKERS AND BROKERS.

BANKERS AND BROKERS.
Allyn & Co., A. C., Chlosgo, III.
Caidwell & Co., Nashville, Tenn.
Campbell & Kinsey, Toledo, O.
Electric Bond & Share Co., New York.
Halsey, Susar & C., Chongo, III.
Mercer Co., G. A., Sayannah, Ga.
Miller & Co., John. Chicago, III.
Provident Savings Bank & Trust Co., Clacinast.
O. Rosenstiel Co., The Lavis S., Cincinnati.
Silverman Co., W. H., Cincinnati.

Bank of Alabama, Ensley, Ala. First National Bank, Richmond, Va. Marine Bank & Trust Co., New Orleans, Maryland Trust Co., Baltimore, Md.

BARGES. (Steel.) American Bridge Co., New York, N. Y. Midland Barge Co., Midland, Pa.

BAR RENDERS.

Electric Welding Co., Pittsburgh, Pa. Koehring Co., Milwaukes, Wis.

BAR CUTTERS.

Buffalo Forge Co., Buffalo, N. Y. Electric Welding Co., Pittsburgh, Pa. Koehring Co., Milwaukee, Wis. BAR IRON. (Befined and Galvanized.)

Steel, Rounds, Flats, Hexagon and Squares.

Squares.
Atlanta Bolt & Steel Products Co., Atlanta Concrete Steel Co., New York, N. Y. Ingalls Iron Works Co., Birmingham, Ala. Knoxville, Iron Co., Knoxville, Tenn. Laclede Steel Co., St. Louis, Mo. Ryerson & Son. Jos. T., St. Louis and New York.
Southern Steel & Bolling Mill, Inc., Birmingham, Ala.

Spacing for Concrete Reinforcement,

Electric Westing Co., Pittsburgh, Pa BARS, WIRE, WIRE FABRIC, STEEL Etc. (For Reinforred Concrete.) Cincinnati Iron & Steel Co., Cin'nati, O Concrete Steel Co., New York, N T Jones & Laughin Steel Co., Pittsburgh, Pa. Oliver Iron & Rivel Co., Pittsburgh, Pa. Southern Steel & Rolling Mill, Inc., Bir-mingham, Ala. Southern Steel Frod, Co., Bichmond, Va. Truscon Steel Co., Toungstown, O.

BEAMS, CHANNELS AND ANGLES Belmont Iron Works, Philadelphia, Pa. Carnegie Steel Co., Pittsburgh Pa. Cincinnati Iron & Steel Co., Cincinnati, Ingalis Iron Worka Co., Birmingham, Ala.

BEARINGS. (Car and Engine.) More-Jones Brass & Metal Co., St. Louis

Caldwell & Son Co., H. W., Chicago, Ill.
Chain Belt Co., Milwaukes, Wis.
Link-Belt Co., Philadelphia, Ps.
Morse Chain Co., Ithacs. N. Y.
Eather, Cawas, Rubber,
Balley-Lebby Co., Charleston, S. C.
Baltimore Belting Co., Baltimore,
Olimond Rubber Co., Akron, O.
Druid Oak Belting Co., Inc., Baltimore,
Goodrien Rubber Co., B. F., Akron, O.
Condrear Fire & Rubber Co., Asron, O.
Reed & Duccker, Memphis, Trans.
Smith-Courses Co., Richman, Wa.
Smith-Courses Co., Richman, Wa.
Smith-Courses Co., Richman, Wa.

Du Pont de Nemours & Co., Inc., E. I. Wilmington, Del. Reed & Duccker, Memphis, Term.

BELT CONVEYORS.

Chain Belt Co., Milwaukee, Wis.
Dow Co., Inc., The, Louisville, Ky.
Haiss Mfg. Co., Geo., New York, N.
Portable Mchry. Co., Passaic, N. J.
Booins Conveying Belt Co., New York.

BELT DRESSING

Diamond Rubber Co., Akron. O. Dixon Crucible Co., Jos., Jersey City. Reed & Duecker, Memphis, Tenn.

BENCHES. (Movable Shop.)
Western Tool & Mfg. Co., Springfield, O. BENDING ROLLS. Covington Mach. Co., Inc., Covington, Va.

BICARBONATE SODA. (Sap State Church & Dwight Co., New York, N. Y.

BILLETS. (Basic Open Hearth.) Pittsburgh Steel Co., Pittsburgh, Pa., Wheeling Steel Prod. Co., Wheeling, W.

BLAST-FURNACE LININGS. Ashland Fire Brick Co., Ashland, Ky.

BLASTING ACCESSORIES. Atlas Pawder Cn. Wilmington. Del. Du Pont de Nemours & Co., Inc., E. I. Wilmington, Del. Hercules Powder Ce., Wilmington, Del.

BLASTING POWDER
Atlas Powder Co., Wilmington, Del.
Du Pont de Nemours & Co., Inc., E. I.
Wilmington, Del.
Hercules Powder Co., Wilmington, Del. BLINDS. (Venetian.)

Swedish Venetian Blind Co., New York. Wilson Corp., J. G., New York.

BLOCKS, (Chain.) Wright Mfg, Co., Lisbon, O.

BLOCKS. (Paving, Creosoted.) American Creosote Wks., New Orleans. Long-Bell Lumber Co., Kansas City, Mo.

BLOCK FILLERS. (Paving.) Barber Asphalt Co., Phila., Pa. Barrett Co., New York, N. Y.

BLOWERS AND EXHAUST FANS. Allen Engr. & Mfg. Co., Savannah, Ga. Buckeye Blower Co., Columbus, O. Buffalo Forge Co., Buffalo, N. X. Gottschall & Co., L. B., Dallas, Tex. National Blow Pipe & Mfg. Co., New Orleans, I. S. Co.,

Steam Jet. McClave--Brooks Co., Scranton, Pa. Turbe. Ingersoll-Band Co., New York, N. Y.

BLOW PIPES

SLOW PIPES.
Allen Engr. & Mfg. Co., Savannah, Ga.
Burkett Sheet Metal Works, Hattiesburg,
Miss.
National Blow Pipe & Mfg. Co., New
Orleans, La.
Savannah Blow Pipe Co., Savennah, Ga.
Shreveport Blow Pipe & Sheet Iron
Works, Ltd., Shreveport, La.

BLUE PRINTS. Tri-State Blue Print & Supply Co., Mem-phis, Tenn.

BODIES. (Automatic Dump.) Eagle Wagon Works Auburn, N Y. Jennings Automatic Dump Body Inc. Roanoke, Va.

BOILERS
Abendroth & Root Mig. Co., Newburgh,
N. Y.
Baboock & Wilcox Co., New York, N. Y.
Baboock & Wilcox Co., New York, N. Y.
Baboock & Wilcox Co., New York, N. Y.
Brownell Co., Dayton, Ohio.
Charleston Dry Dock & Mch. Co.,
Chattanooga Boiler & Tank Co., Chattanooga Boiler & Tank Co., Chattanooga Boiler & Tank Co., Chattanooga Boiler & Tank Co., Chattanooga Boiler & Tank Co., Chattanooga Boiler & Tank Co., Corinth, Miss.
Curtis Bay Copper & Iron Works, Inc.,
Baltimore, Md.
Davis J. F., Chicago, Ill.
Edge Moor Iron Co., Edge Moor, Del,
Eric City Iron Works, Eric, Pa.
Hartis Bros. Co., Chicago, Ill.
Heine Boiler Co., St. Louis, Mo.,
Chinatti, Co., Stanwood & Gamble Co., CinCinnatt, O., Wis, & Sup. Co., Augusta,
Marchan Bros. Co., Chicago, Ill.
Marchan Bros. Co., Chicago, Ill. Houston, Stanwood & Gamble Co., Cincinnati, O., Lombard Iron Wks. & Sup. Co., Augusta, Markman Eng. Co., Chicago, Ill.

Murray Iron Works Co., Burlington, Ia.
Potstown Steel Co., Douglassville, Pa.
Randle Machinery Co. Cincinnati, O.
Schoffeld's Iron Works, Macon, Ga.
U. S. Power Equip, Co. Chicapo, III.
Vogr Mach. Co., Inc., Henry, Louisville,
Walsh & Weidner Boller Co., Chattanooga
Youngstown Boller & Tank Co., Youngstown, O.
Zelnicker Supply Co., W. A., St. Louis.

BOILER BAFFLES.
Jointless Fire Brick Co., Chicago, Ill.

BOILER COATING. (Insulating.) Robertson Co., H. H., Pittsburgh, Pa.

BOILER FEED-WATER PURIFICATION. Scaife & Sons Co., Wm. B., Pittsburgh BOILER GRAPHITE

Dixon Crucible Co., Jos., Jersey City, N.J. BOILER HEADS. (Flanged.) Lukens Steel Co., Coatesville, Pa.

BOILER SETTINGS.

Jointless Fire Brick Co., Chicago, Ill. BOILER TURES.

Allegheny Steel Co., Pittsburgh, Pa., Boiler Tube Co. of America, Pittsburgh, Cincinnati Tron & Steel Co., Cincinnati, O., Midvale Steel & Ordnance Co., Phila National Tube Co., Pittsburgh, Pa., Byerson & Sen, Jos. T., St. Louis and New York.

BOLTS, RIVETS, STUDS, WASHERS. Atlanta Bolt & Steel Prod. Co., Atlanta, Bethlehem Steel Co., Bethlehem. Pa. Midvale Steel & Ordanoc Co., Phila. Oliver Iron & Steel Co., Pritzburgh, Pa. Progressive Mfg. Co., Torrington. Comp. Republic Iron & Steel Co., Youngstown, O. Ryerson & Son, Jos. T., Bt. Louis and New York.

BOND BUYERS.

BOND BUYERS.

Allyn & Co., A. C., Chicago, III.
Bell & Co., A. T. Toledo, O.
Caldwell & Co., A. T. Toledo, O.
Caldwell & Co., M. W., Little Bock, III.
Halsey, Stuart & Co., Chicago, III.
Halsey, Stuart & Co., Chicago, III.
Halsey, Stuart & Co., Chicago, III.
Mercantile Trust & Deposit Co., Baite
Miller & Co., G. L., Atanta, Ga.
Nureen & Co., Joha, Chicago, III.
Provident Savings Bank & Trust Co., CinRosenstiel Co., The Lewis S., Cincinnati,
Silverman Co., W. H., Chichnail.
Slayton & Co., W. L., Toledo, O.
Title Guarantee & Trust Co., Cincinnati,
Wise & Co., Harold G., Houston, Texas.
RONDS. (Surety eds.)

BONDS. (Surety, etc.) Miller & Co., G. L., Atlanta, Ga.

BRASS. (Rod, Sheet, Tube, etc.) Chase Metal Works, Waterbury, Conn. Mueller Metals Co., Port Huron, Mich.

BRASE GOODS

Balley-Lebby Co., Charleston, S. C. Copper & Brass Research Asso., New York Lunkenheimer Co., The, Cincinnati, O. Powell Co., The William, Cincinnati, O. Waterbury Mfg. Co., Waterbury, Conn.

Hood Brick Co., B. Mifflin, Atlanta, Ga. Common Building.

Friend & Co., Inc., Petersburg, Va. Georgia-Carolina Brick Co., Augusta, Ga. Kingsport Brick Corp., Kingsport, Tenn. Enameled. Am. Enam. Brick & Tile Co., New York.

Am. Enam. Brick & Tile Co., New York.
Am. Enam. Brick & Tile Co., New York.
Birmingham Clay Frod. Co., Birmingham.
Cannelton Clay Prod. Co., Cannelton, Ind.
Hood Brick Co., B. Mifflin, Albanta, Ga.
Kingsport Brick & Tile Co., Lock Haven,
Lock Haven Brick & Tile Co., Lock Haven, Pa. Williams Brick Co., F. Graham, Atlanta.

Williams Brick Co., F. Graham, Atlanta.

First.

Am. Enam. Brick & Tile Co., New York. Anniston Refractories Co., Oxford, Ala. Ashland Fire Brick Co., Ashland Fire Brick Co., Birmington Clay Frod. Co., Birmington Clay Frod. Co., Birmington, Co., Birmington, Co., Birmington, Co., Birmington, Co., Cannelton, Ind. Cannelton Glay Frod. Co., Cannelton, Ind. Cannelton Sewer Pipe Co., Cannelton, Ind. Cannelton Sewer Pipe Co., Cannelton, Ind. Cannelton, Estrick Co., A. F., Maxico, Mo. Howard Refractories Co., Drosey, Md. Ohlo Refractories Co., The, Fronton, O. Portsmouth, Co., The, Fortsmouth, O. Stevens Bros. & Co., Stevens Pottery, G. Union Mining Co., Mt. Savage, Md. Walsh Fire Clay Prod. Co., St. Leuis.

Pressed (Dry). Georgia-Carolina Brick Co., Augusta, Ga.

Ind.
Freniols Brick Mchy. Co., St. Louis, Mo.
Freese & Co., E. M., Gallon, O.
Hadfield-Penfield Steel Co., Bucyrus, O.
International Clay Machinery Co., Dayton,
Lancaster Iron Works, Inc., Lancaster, Pa.
4teele & Nons J. C., Statesville, N. C.
Taplin-Rice-Clerkin Co., Akvon. O.

BRIDGES.

obinson & Co., Dwight P., New York.

American Bridge Co., New York, N. Y. Belmont Iron Works, Philadephia, Pa. Champion Bridge Co., Wilmington, O. Chesapaite Bridge & Steel Co., Chattanges Pridge & Co., Inc., Louisville, Ky. Grainger & Co., Inc., Louisville, Ky. Ingails Iron Works Co., Birmingham, Ingails Iron Works Co., The, Birmingham, Ingails From Works Co., The, Birmingham, Ingails Phase & Iron Co., Evansville, Ind. McClinite-Marchail Co., Pittsburgh, Ps. Bichmond Strue, Deeb Co., Bloanoks, Va. Virginis Bridge & Iron Co., Boanoks, Va.

BRIDGES AND STRUCTURAL IRON Chattanooga Paint Ca., Chatta'ga, Te

BRIMSTONE. Union Sulphur Co., The, New York, N. T.

BUCKETS.

Clam Shell.

Blaw-Knor Co., Pittaburgh, Pa., Browning Co., Cisveland, Ohio, Haiss Mfz. Co. Geo., New York, N., Y. Hayward Co., The, New York, N., Y. Orion & Steinberners Co., Chicago, Ill. Owen Bucket Co., The Cieveland, O.

Dredging, Excavating, Sewer, Etc. Haiss Mfg. Co., Inc., Geo., New York.
Hayward Co., The, New York, N. Y.
Marion Steam Shorel Co., Marion, O.
Monignan Machine Co., Chicago, Ill.
Owen Bucket Co., The, Cleveland.

Pawling & Harnischfeger Co., Milwaukee,

Orange Peel.

Hayward Co., The, New York, N. Y. Orton & Steinbrenner Co., Chicago, Ill.

Ore Handling, Caldwell & Son Ca., H. W., Chicago, Ill. Hayward Co., The, New York, N. Y. Owen Bucket Co., The, Cleveland, O.

BUILDERS AND CONTRACTORS. Foundation Ca., The, New York, N. Y.
Fraser, Brace & Co., New York, N. Y.
Robinson & Ca., Dwight P., New York.
Rome & Webster, Boston, Mass.
White Engr. Corp., The J. G., New York,
Widmer Engineering Co., Bt. Louis, Mo.

industrial. Belmont Iron Works, Philadelphis, Pa.
Farris Bridge Co., Cumberland, Md.
Ingalis Iron Wks, Co., Birmingham, Ala.
McClinite-Marshall Co., Pittsburgh, Pa.
Maryland Metal Building Co., Baltimore.

Marriand Metal Building Co., Baltimore.

Portable, Steel. law-Knox Co., Pittsburgh, Pa., laryland Metal Building Co., Baltimore.

Portable, Wooden.
Minter Homes Co., Greenville, S. C.

Pressed Steel.

BUILDING MATERIAL. Minter Homes Co., Greenville, S. C.

BUSHINGS. (Bram & Bronze.) Mueller Metals Co., Port Huron, Mich.

GABLES. (Copper Wire, Etc.)
Williamsport Wire Bope Co., Williamsport. Pa.

CABLES AND WIRE. (Electric.) American Steel & Wire Co., Chicago, Ill. Boebling's Son Co., J. A., Trenton, N. J.

GABLEWAYS. (Overhead, Suspension.) Allen Engineering Co., Philadelphia, Pa. Broderick & Bascom Rope Co., St. Louis, Flory Mig. Co., S., Bangor, Pa.

BRICK AND CLAYWORKING MCHY.

AND SUPPLIES.

Mind Supplies.

Mind Hoisting Engine Co., J. S., Newark, N. I.

Mindy Hoisting Engine Co., J. S., Newark, N. J.

National Hoisting Eng. Co., Harrison, N. J.

Supplies Helds Make Co. St. Louis, Mo.

CALCINERS. Christie Co., L. B., Pittsburgh, Pa.

CALL SYSTEMS. (Automatic.) Automatic Electric Co., Chicago, Ill.

CAMERAS. (For Business Docu Photostat Corp., Bochester, N. Y.

CAN AND BOX-MAKING MACHINERY, Bliss Co., E. W., Brooklyn, N. Y.

CANNING MACHINERY AND SUP-Bobins & Co., A. R., Baltimore, Md.

Dump, Industrial, Logging and Mine Dump, Insustriat, Leguing and Electric Wheel Co., Quincy, Ill. Georgia Car & Loco. Co., Allanta, Ga. International Clay Mehry, Co., Dayton, O. Mid-Continent Eqt. & Mehry, Co., St. Louis, Mo. Bherwood, E. C., New York, N. Y. Southern Iron & Equip, Co., Atlanta, Ga. United Iron Works, Kansas City, Mo.

Tank. Liquids Despatch Line, Chicago, Ill.

CAR LOADERS AND UNLOADERS Bonney Supply Co., Inc., Rochester, N. Y. Byers Machine Company, Ravenna, O. Dow Ce., The, Louisville, Ky. Haiss Mfg. Co., Geo., New York, N. Y. Portable Mchry. Co., Passaic, N. J.

CAR ROOFS. (Pressed Steel.) Sharon Pressed Steel Co., Sharon, Pa.

CAR WHEELS, AXLES AND TRUCKS. Carnegie Steel Co., Pittsburgh, Pa. United Iron Works, Kansas City, Mo.

CASTINGS.

Dixie Brass & Pdy. Co., Birmingham, Ala.

Bethlehem Steel Co., Bethlehem, Pa. Covington Mach. Co., Inc., Covington Mach. Co., Inc., Covington. Va. Curtis Bay Copper & Iron Works, Inc., Baltimore, Md.
Ditte Brass & Fdy. Co., Birmingham, Ala. More-Jones Brass & Metal Co., St. Louis, Mueller Matals Co., Port Huron. Mich.

Caldwell & Co., E. B., Bradford, Pa.
Charleston Dry Dock & Mch. Co.,
Charleston, S. C.
Columbian Iron Wha, Chattanooga, Tenn.
Covington Mach. Co., Inc., Covington, Va.
Georgia Car & Loco, Co., Atlants, Ga.
Charleston Pipe & FOr, Co., Ipnchburg, Va., Hammond-Byrd Iron Co., Birm'ham, Ala, Murray Iron Works, Burlington, Ia. Nat'l Cast Iron Pipe Co., Birmingham. Roanoke Bridge & Iron Wits., Roanoke.

Va. San Shipbuilding Co., Chester, Pa. San Shipbuilding Co., Chester, Pa. U. S. Cast Iron Pipe & Fdy. Co., Burlington, N. J. Westbrook Elev. Mfg. Co., Danville, Pa.

Mal-Gra Cast. Co., Cambridge City, Ind.

Salem Fdry. & Mch. Wks., Salem, Va.

Steel. Bethlehem Steel Co., Bethlehem, Pa. Crucible Steel Castings Co., Lansdow Pa Ohio Steel Fdry. Co., The, Springfield, O.

CEILINGS.

Berger Mfg. Co., The, Canton, Ohio. Canton Art Metal Co., The. Canton, O. Edwards Mfg. Co., The. Cincinnati, O. Intern'l Steel & Iron Co., Evansville, Ind. Schoodinger, F. O., Columbus, O.

High Temperature.

Jointless Pire Brick Co., Chicago, Ill

Atlas Portland Cement Co., New York. Clinchfield Portland Cem, Corp., King

Clincinfield Portland Cem. Corp., Kings-port, Ten.
Dixie Fortland Cem. Co., Chattanoga.
Guil States ortland Cement Co., De-Successional Cement Co., Birmingham, Ala, Portland Cement Assn. Chicago. Southern States Portland Cement Ca., Bockmart, Ga.

CEMENT MACHINERY.
Allis-Chaimers Mfg. Co., Milwaukee, Wis.
Traylor Eng. & Mfg. Co., Allentown, Pa.

CEMENT TILE. Amer. Cement Tile Mfg. Co., Pittsburgh

CHAIN BLOCKS. Wright Mfg. Co., Lisbon, O.

Columbus McKinnon Chain Co., The, Co-lumbus, Ohio. Beading Chain & Block Corp., Reading. on & Son, Jos. T., St. Louis and

Dredge, Quarry, Steam, Shevel, Columbus McKinnen Chain Co., The, Co-lumbus, Ohio. Rozville Iron Co., Knoxville, Tenn.

Slient Drive. Morse Chain Co., Ithaca, N. Y.

Sarseket, Chain Belt Co., Milwaukee, Wia Columbus McKinnon Chain Co., The, Co-lumbus, Ohio. Link-Belt Co., Philadelphia, Pa. Weller Mfg. Co., Chicago, Ill.

CHAIRS. (Reinforcing Bars.) Concrete Steel Co., New York, N. Y.

Davison Chemical Co., Baitimore. M4. Du Pont de Nemours & Co., Inc., E. I. Wilmington, Del.

CHEMISTS, CHEMICAL ENGINEERS.

CHEMISTS, CHEMICAL EMGINEERS,
Analytical,
Berkeley, W. N., Baltimore, Md.
Froehling & Robertson, Richmond, Va.
Hoonstauter Laboratories, New Yors.
Hunt & Co., Robert W., Chicago, Ill.
Luter, Clark A., Baltimore, Md.
Meade & Co., Richard K., Baltimore, Md.
Pittaburgh Testing Lab., Pittaburgh, Pa.
Wiley & Co., Inc., Baltimore, Md.

Cament. (Portland.) Berkelev. W. N. Baltimore. Md. Froehling & Bobertson, Richmond, Va. Hunt & Co. Robert W., Chicago, Ill. Pittsburgh Testing Lab., Pittsburgh, Pa.

Coal and Coke. berkeley, W. N., Baltimore, Md.
Iochstadter Laboratories, New York.
lunt & Co., Robert W., Chicago, Ilitittsburgh Testing Lab., Pittsburgh, Pa.
Viley & Co., Inc., Baltimore, Md.

Censulting.

Froehling & Robertson, Richmond, Va. Hochstadter Laboratories, New York. Luter, Clark A., Baltimore, Md. Wiley & Co., Inc., Baltimore, Md.

Wiley & Co., Inc., Baltimore, Md.

Fartilizers.

Freehling & Robertson, Richmond, Va. Luter, Clark A., Baltimore, Md. Wiley & Co., Inc., Baltimore, Md.

Berkeley, W. N., Baltimore, Md. Hochstadter Laboratories, New York. Meade & Co., Richard K., Baltimore, Md.

Minerals and Ores. nter. Clark A., Baltimore, Md. littsburgh Testing Lab., Pittsburgh, Pa, lites & Co., Inc., Baltimore, Md.

Hachstadter Laboratories, New York. Luter, Clark A., Baltimore, Md. Wiley & Co., Inc., Baltimore, Md.

Berkeley, W. N., Baltimore, Md. Hunt & Co., Robert W., Chicago, IP Pittsburgh Testing Lab., Pittsburgh, Pa.

Hochstadter Laboratories, New York, Wiley & Co., Inc., Baltimore, Md.

CHEMICAL MACHINERY. (Used.) American Mchry. Eqt. Co., Charlotte, N. C. Heinegen, W. P., New York, N. Y.

CHEMICAL PLANT EQUIPMENT. Curtis Bay Copper & Iron Works, Inc.,

CHIMNEYS.

Cencrete.
Rust Engineering Co., Pittsburgh, Pa. Radial Brick.

Custodis Chimney Const. Co., Alphona, New York, N. Y. Bust Engineering Co., Pittsburgh, Pa. Steel.

Petroleum Iron Wks. Co., Sharon, Pa.

CITY PLANNING. Draper, E. S., Charlotte, N. C. Ludlow Engra., Winston-Salem, N. C.

CLEANING POWDER. India Alkali Works, Boston, Mass.

CLOCKS. (Watchman's Portable.) Chicago Watchman's Clock Wks., Chicago. Seo Clock Co., Boston, Mass. Newman Clock Co., New York, N. Y.

CLUTCHES. (Friction.) Caldwell Co., Inc., Louisville, Ky. Kinney Mfg. Co., Boston, Mass. Medart Co., The. St. Louis. Mo. Woods Sons Co., T. B., Chambersburg, Pa.

CDAL (Bituminous.) Alabama Co., The, Birmingham, Ala. Central Coal & Coke Co., Kansas City, Hammond-Byrd Iron Co., Birmingham Monro Warrior Coal & Coke Co., Bir-Tenn, C. I. & R. B. Co., Birmingham.

COAL AND ASH-HANDLING MCHY COAL AND ASH-HANDLING MCHY. Chain Belt Co., Milwauke, Wit. Columbus Conveyor Co., Columbus, O. Dow Co., Inc., The, Louisville, Ky. Haiss Mfg. Co., Geo., New York, N. Y. Hayward Co., The. New York, N. Y. Jeffrey Mfg. Co., Columbus, O. Lidgarwood Mfg. Co., New York, N. Y. Ling-Belt Co., Philadelphia, P. Portable Mchry. Co., Passaic, N. J. Portable Mchry. Co., Passaic, N. J. Portable Mchry. Co., Passaic, N. J. Weller Mfg. Co., Chicago, Ill. World Co., Woller Mfg. Co., Chicago, Ill.

COAL TAR AND BY-PRODUCTS. Barrett Co., New York, N. Y. Brier Hill Steel Co., Youngstown, O

COAL TIPPLES. American Bridge Co., New York, N. T

COIL MAKING. (Armature and Field.) Charlotte Elec. Repair Co., Charlotte, N.C.

Alabama Co., The, Birmingham, Ala Brier Hill Steel Co., Youngstown, O. Hammond-Byrd Iron Co., Birmingham Monro Warrior Coal & Coke Co., Bi mingham. COKE mingham.
Tenn. C. I. & R. R. Co., Birmingham.
Yolande Coal & Coke Co., Birmingham.

GOKE OVENS. (By-Products.) Smythe Co. S. R., Pittsburgh, Ps.

COLUMNS. (Cast Iron.) U. S. Cast Iron Pipe & Pdy. Co., Bur-lington. N. J.

COMMUTATORS. Chattanooga Armature Wks., Chattanes

COMPRESSORS. (Gasoline Extraction.) Sullivan Machinery Co., Chicago, Ill.

CONCRETE CONSTRUCTION. (Rein-Atlas Portland Coment Co., New York. Bust Engineering Co., Pittsburgh, Pa.

CONCRETE CULVERT FORMS. Blaw-Knox Co., Pittsburgh, Pa.

CONCRETE HARDENER.

Master Builders Co., The, Cleveland, 0

C.

Pa.

Y.

E.

T.

rk.

0

1

I.C

lur-

-1

. 0

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you. SONCRETE REINFORCING BARS.

GONGRETE REINFORCING BARS, Districh Broa, Baltimore, Md. Jenes & Laughilo Steel Co., Pittaburgh. Kporville Iron Co., Knoxville, Tenn. Laclede Steel Co., St. Louis, Mo. Byerson & Sen. Jos. T., St. Louis and New York. Scottlern Seel Prod. Co., Richmond, Va. Tusenia Steel Supply Co., Richmond, Va. Virginia Steel Supply Co., Richmond, Va.

CONCRETE REINFORCING WIRE AND WIRE FABRIC.

wiffe FABRIC.
American Steel & Wire Co., Chicago, Ill.
Concrete Steel Co., New York, N. Y.
Mitchell-Tappen Co., New York, N. Y.
National Steel Fanic Co., Pittaburgh.
Wickwire-Spencer Steel Corp., New York,

CONCRETE ROAD REINFORCING National Steel Fabric Co., Pittsburgh.

Buffalo Steam Pump Co., Buffalo, N. Y. Cresson-Morris Co., Philadelphia, Pa. Ingersoli-Band Co., New York, N. Y. Manistee Iron Wks. Co., Manistee, Mich, Westinghouse El. & Mfg. Co., E. Pittsburgh. Worthington Pump & Mehy. Corp., N. Y.

CONDUITS. (Electrical, Interior, Steel.)
Youngstown Sheet & Tube Co., Youngstown, O.

CONDUIT SYSTEMS. (Underground.) George Constr. Co., Philadelphia, Pa.

CONTRACTORS.

Buildings, Industrial.

Bayler & Co., C. A. D., Atlanta, Ga.
Concrete Steel Bridge Co., Clarksburg, W.

Drainage.
Atlantic Guif & Pacific Ca., New York.
Canal Construction Co., Memphis, Tenn.
McGinnis & Ca., N. C., Memphis, Tenn.
McWilliams Co., Inc., Memphis, Tenn.

Sewilliams Ch., De., Benghis, Salantie, Guif & Pacific Co., New York, Bayley & Co., C. A. D., Atlanta, Ga.

Electrical,
Clark Jr. Electric Co., Jas., Louisville, Ky.
Buntington & Suerry, Greenville, S. C.

Foundations and Dams.
Bayley & Co., C. A. D., Atlants, Ga.
Foundation Co., The, New York, N. Y.
Fraser, Brace & Co., New York.

Fraser, Brace & Co., New York.

Bayley & Co., C. A. D., Atlanta, Ga.
Cornell-Young Co., Macon, Ga.
Doullut & Williams Co., New Orleans.
Foundation Co., The. New York, N. T.
Fraser, Brace & Co., New York, N. T.
Fraser, Brace & Co., New York.
General Engr. & Constr. Co., Rockford, III,
Long Co., M. A., Baltimore.
Normoyle & Sons, M. F., Boanoke, Va.
Bobinson & Co., Dwight P., New York.
Southeastern Constr. Co., Charlotte, N. C.
Stone & Webster, Inc., Boston, Mass.
Tucker & Lazton, Charlotte, N. C.
White Engr. Corp., The J. G., New York.

Levees, Boach & Stancell, Memphis, Tenn.

Mine Shafts and Tunnels.
Bayley & Co., C. A. D., Atlanta, Gs.
Foundation Co., The, New York, N. Y.
Fraser, Brace & Co., New York.

Power Plants.

Foundation Co., The, New York, N. Y.

Fraser, Brace & Co., New York.

Railread.

Bayley & Co., C. A. D., Atlanta, Ga.
Cornell-Young Co., Macon, Ga.
Foundation Co., The, New York, N. Y.
Frazer, Brace & Co., New York,
Roach & Stansell, Memphis, Tenn.

Bosco & Cameria, Mempins, Tesas.

Bayley & Co., C. A. D., Alianta, Ga.
Concrete Sisel Bridge Co., Clarksburg, W.
Va.
Doullut & Williams Co., New Orleans.
Foundation Co., The, New York, N. T.
Fraser, Brace & Co., New York, N. T.
Fraser, Brace & Co., New York,
M. A., Baltimore,
M. M. Baltimore,
M. M. Baltimore,
M. F., Baltimore,
M. F., Roanoles, Va.
Tucker & Laxton, Charkotte, N. C.

Road and Street Paving. McCrary Co., J. B., Atlanta, Ga. Boach & Stansell, Memphis, Tenn.

Reefing.

Amer. Cement Tile Mfg. Co., Pittsburgh.

Kanasa City Slate & Tile Roofing Co.,

Kanasa City, Mo.

Bayley & Co., C. A. D., Atlants, Ga. Foundation Co., The. New York, N. Y. General Engr. & Constr. Co., Rockford, III, Franct, Brace & Co., New York, McCrary Co., J. B., Atlants, Ga. Tooker & Laxion, Charlotte, N. C.

CONTRACTORS' MCHY. AND SUPPLIES.

CONTRACTORS' ECHY. AND SUPPLIES.
American Saw Mill Mchry. Co., Hackettatown, N. J.
Armstrong & Co., Archer, New York
Beckerley & Trusler, Baltimore, Md.
Dempeler Equip. Co., Knoxville, Tean.
Porschner, Affred J., Philadelphia, PaFostor Co., H. M., Baltimore, Md.
Hampion Roads Equip. Co., Norfolk, Va.
Harris Bros Co., Chiesso Hi
Holsting Engine Sales Co., New York.
Hollander Eqt. Co., N. W York. N. Y.
Houston Bay. Car. Co., Houston, Te.
Jacottone. Walter E. Jacksonville, Fla.
Mailory Machinery Corp., Baltimore, Md.
Marine Metal & Supply Co., New York.
Mills Contractors Ext. Co., Chattanooga,
Owen Bucket Co., The, Cleveland,
Walter F., Chicago, Ill,
Miles Machinery Co., Saginsw, Mich.
Mills Contractors Ext. Co., Chattanooga,
Owen Bucket Co., The, Cleveland,
Owen Bucket Co., The, Cleveland,
Coverice Equipment Co., Philadelphia,
Bouth Side Fürz. & Mch. Wis., Charleston, W. Va.
Tarr. Louis A., Inc., Baltimore, Md.
Turner Co., C., Chattanooga, Teno.
Wilson Tank & Culvert Co., San Antonio,
Tex.

CONTRACT WORK WANTED.

(See following classification:)
Beller and Tank Work,
Castings. Castings.
Forgings and Machine Shops.
Forgings and Machine Shops.
Gear Cutting.
Gear C

CONVEYING AND ELEVATING MA-GHINERY.

CHINERY.

CO., H. W., Chicago, III.

Chaile Belt Co., Milwaukse, Wis.

Charleston Industrial Carp., Nitro, W. Va.

Dow Co., Inc., The, Louisrille, Ey.

Eaiss Mg. Co., Geo., New York, N. T.

Jeffrey Mg. Co., Columbus, O.

Link-Belt Co., Philadelsphia, Pa.

McLanahan-Stone Mach. Co., Hollidays
burg, Pa.

McCanaba Elevira Crane & Heist Co.,

Montour Falls, N. Y.

Taplin-Rico-Clerkin Co., Akron, O.

Weller Mfg. Co., Chicago, III.

Coal and Carpe, Columbus Conveyor Co., Columbus, O.

Portable.

Jeffrey Mfg. Co., Columbus, O. Hampton Roads Equip. Co., Norfolk, Va.

COPPER & BRASS. Copper & Brass Research Asso., New York

CORD. (Braided.) Samson Cordage Works, Boston, Mass.

CORDADE.

Plymouth Cordage Co., North Plymouth, Mass. Bamson Cordage Works, Boston, Mass. Whitlack Cordage Co., New York, N. Y.

COTTON-GIN MACHINERY. Continental Gin Co., Birmingham, Ala.

COTTON-MILL COLUMNS. Cordele Sash, Door & Lumber Co., Cordele, Ga.

COTTON-MILL MACHINERY.

compton & Knowles Loom Works, Wer-cester, Mass. raper Corporation, Hopedale, Mass.

COTTON-MILL SUPPLIES.
Crompton & Knowles Loom Works, Warcester, Mass.

COTTONSEED-OIL MACHINERY, Bauer Bros. Co., The, Springfield, O. Cardwell Machine Co., Richmond, Va.

COTTON TIES. Pittsburgh Steel Co., Pittsburgh, Pa. COUPLINGS.

Golden's Füry. & Meh. Co., Columbus, Ga. Wood Drill Works, Paterson, N. J. Shaft

Wood's Sons Co., T. B., Chambersburg, Pa. COUPLING PIPE. American Spiral Pipe Was., Chicago, Ill.

COVERINGS. (Pipe, Beilers, etc.) Johns-Manville, Inc., R. W., New York, Wyckoff & Son Co., A. Elmira, N. T.

Box & Ca., Inc., Alfred, Phila., Pa.
Byers Machine Company, Bavenna, O.
New Jensy Fdry, & Mach. Co., New York,
Niles-Bement-Fond Co., New York, N. Y.
Northwest Engr. Co., Chicago, Ill.
Penn. Bridge Co., New York, N. Y.
U. S. Crane Co., Chicago, Ill.

Electric Travelins.

Box & Co. Inc., Alfred, Phila., Pa.
Champion Engr. Co., The, Kenton, O.
Chesapeake iron Works, Baltimors, Md.
Lane Mg. Co., Montpeller, Vt.
Link-Belt Co., Philadelphia, Pa.
Pawling & Harmischfeper Co., Milwaukes,
Reading Chain & Block Corp., Reading,
Pa. Shepard Electric Crane & Hoist Co., Montour Falls, N. Y.

Gasoline.

Pawling & Harnischfeger Co., Milwaukee.

Penn Bridge Co., New York, N. Y.

Sentry and Cantilover. Orton & Steinbrenner Co., Chicago, Ill.

JIb. nepard Electric Crane & Helst Co., Mon-tour Falls, N. Y.

Locamative

Leconstive,
Austin Machinery Corp., Chicago, Ill.
Browning Co., Ciereland, Ohio.
Browning Co., Ciereland, Ohio.
Bucyras Co., South Milw. Wis.
Byers Machine Company Ravenna, O.
Eric Steam Shovel Co. (Bail Engine Co.),
Eric Pa.
Hoisting Mchry, Co., New York, N. Y.
King, Philip T., New York, N. Y.
Luk-Belt Co., Philadelphia, Pa.
Orton & Steinbrenner Co., Chicago, Ill.

Bay City Dredge Works, Bay City, Mich Northwest Engr. Co., Chicago, Ill.

Traveling, Hand, Power.

ox, Alfred & Co., Inc., Phila., Pa. hampion Engr. Co., The, Kenton, O., hesspeake Iron Works, Baltimore, Md. hepard Electric Crane & Hoist Co., Mon-tour Falls, N. Y.

CRATING LUMBER.

American Lumber Co., Laurel, Miss. Williams, Henry O., Berselia, Ga.

CREOSOTING. (Wood Materials.)

GREOSOTING. (Wood Materials.)
American Creosote Wis, New Orleans.
American Creosoting Co., Louisylle, Ky.
Eppinger & Hasseell Co., New York, N. L.
Guifport Creosoting Co., Penasoola, Fla.
Penasoola Creosoting Co., Penasoola, Fla.
Sawannah Creosoting Co., Loc., The. Perr
Wentworth, Sawannah, Ga.
Southern Wood Proserving Co., Atlanta.
Southern Wood Proserving Co., Atlanta.

CREOSOTING MATERIALS. sarrett Co., New York, N. Y.

CROSSARMS, (Creosoted.)

American Creosote Was, New Orleans, American Creosote Was, New Orleans, American Creosote Was, New Orleans, Creosoted Materials Co., Inc., New Orleans, Guliport Creosoting Co., Guliport, Miss, Pensacola Creosoting Co., Pensacola, Fla. Savannah Creosoting Co., Inc., The, Port Wentworth, Savannah, Ga., Atlanta.

Cresseted.

American Creoseted.

American Creoseted Wha, New Orleans, American Creoseting Co., Louisville, Ky. Creoseted Materials Co., Inc., New Orleans, Creoseted Materials Co., Inc., New Orleans, Co., Coultroot, Creoseting Co., Guilfordt, Misa, Pensacola Creoseting Co., Fensacola, Flac, Savannah Creoseting Co., Inc., The, Port Wentworth, Savannah, Ga.

Southern Creoseting Co., Ltd., Slidell, La. Southern Wood Preserving Co., Atlanta.

Oak, McRae Lumber Co., Corinth, Miss.

CRUSHED STONE. (Road Concrete and Amer. Limestone Co., Knoxville, Ten Boxley & Co., W. W., Boxnoke, Va.

CRUSHERS.

Coal and Coke, Orton & Sieinbrenner Co., Chicago, Ill. Weller Mfg. Co., Chicago, Ill. Williams Patent Crusher & Pulveriser Co., Chicago, Ill.

Corn and Coh. Gruendier Pat. Crusher & Pul. Co., St. Louis. Williams Patent Crusher & Pulveriser Co., Chicago, III.

Rosk.

Austin Mg. Co., Chicago, III.
Austin-Western Boad Mchy. Co., Chicago,
Buchanan Co., Ize., C. G., New York.
Good Boads Mchry. Co., Atlanta, Ga.
Traylor Eng. & Mg. Co., Allentown, Pa.
Universal Boad Mchy. Co., Kingston, N. T.
Wilson & Co. E II Philadelphia Pa

CRUSHING AND PULVERIZING MA-

Allis-Chalmers Mfg. Co., Milwaukee, Wis Buchanan Co., Inc., C. G., New York Gruendler Pat. Crusher & Pul. Co., St.

Louis.

Jeffrey Mfg Co., Columbus, O.

McLanaban-Stone Meh. Co., Holidays-McLanham-Stone acceptance burg, Pa.
Raymond Bros. Impact Pulv. Co., Chicago,
Traylor Eng. & Mig. Co., Allentown Pa.
Williams Patent Crusher & Pulveriser
Co., Chicago, III.
Werthington Pump & Mchy. Corp., N. 1.

CULVERT PIPE.

Cast ires.

American C. I. Pipe Co., Birmingham.
U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.

Wood & Co., B. D., Philadelphia, Pa.

Vitrified.

Chattanooga Sewer Pipe Works, Chatta-

CULVERTS. (Corrugated Metal.) GULVERTS. (Corrugated Metal.)

Amer. Sheet & Tin Plate Co., Pittsburgh.

Amoc Cul. & Flume Mfg. Asso., Chicago.

Berger Mfg. Co. of Texas, Dallas, Tex.

Canton Culvert & Silo Co., The. Canton,

Chattanooga Road Machinery Co., Chattanooga, Tenn.

Dominion Metal Prod. Corp., Ronnoks, Va.,

Florida Metal Products Co., The, Jacksonville, Fla.

Galion Iron Works & Mfg. Co., Galion, O

CURB PROTECTORS. (Steel Barn.) Concrete Steel Co., New York, N. Y. National Steel Fabric Co., Pittsburgh. Truscon Steel Co., Youngstown, O.

CUTTERS. (Wire Rope.)
Leschen & Sons Rope Co., A., St. Louis.

CYLINDERS. (Compressed Air, Gas.) National Tube Co., Pittsburgh, Pa.

DECK AUXILIARY MCHY. (Steamship.) Bethlehem Shipbuilding Corp., Bethlehe

DERRICKS AND DERRICK FITTINGS Allen Engineering Co., Philadelphia, Pa. Elect. Hoist & Derrick Co., Hog Island, Pa. Hayward Co., The, New York, N. Y. Lidgerwood Mfg. Co., New York, N. Y. Lidgerwood Mfg. Co., New York, N. Y. Mundy Hoisting Engine Co., J. S., Newark, N. J. Newark, N. J. National Hoisting Eng. Co., Harrison, N. J. Penn Bridge Co., New York, N. Y.

Guy. Penn Bridge Co., New York, N. Y.

Stiff Log. Penn Bridge Co., New York, N. 7.

DIGESTERS. Renneberg & Sons Co., Edw., Baltimere

DITCHING MACHINERY.

DITCHING MACHINERY.
Austin Machy. Corp., Chicago, Ill.
Browning Co., Cleveland, Ohio.
Buckeye Traction Ditcher Co., Findlay, O
Bucyrus Co., South Milwaukee, Wis
Byers Machine Company, Ravenna. O
Eric Steam Shovel Co. (Ball Engine Co.)
Eric, Pa.
Hayward Co., The, New York, N. Y.
Hayward Co., The, New York, N. Y.
Osgood Co., The, Marion, O.
Owen Bucket Co., Cleveland, O.

DOORS.

Fire. Richmond Fireproof Door Co., Bichmond, Ind. Schoedinger, F. O., Columbus, O.

Hollow Metal. Cincinnati Mfg. Co., Cincinnati, O.
Dahistrom Metallic Deor Co., Jamestewa,
N. Y.

Kalamein.

Mosschl-Edwards Corrug, Co., Cincinnati. ProBert Sheet Metal Co., Cincinnati.

Rolling, Steel and Wood, Wilson Corporation, J. G., New York.

Steel Rolling, Etc. Edwards Mfg. Co., The. Cincinnati, O. Kinnear Mfg. Co., Columbus, O., Lenderking, Philip H., Baltimore, Md. Mosschi-Edwards Corrug, Co., Cincinnati.

Tin Clad. mond Fireproof Door Co., Bishmond, edinger, P. O., Columbus. O.

Yellow Pine.
Cordele Sash, Door & Lumber Co., Cordele Ga.
Morgan Milwork Co., Baltimore, Md.

DRAFTSMEN'S SUPPLIES. Weber Co., F., Philadelphia, Pa.

DRAGLINE EXCAVATORS. Monighan Machine Co., Chicago, I Northwest Engr. Co., Chicago, III Orton & Steinbrenner Co., Chicago. Sauerman Bros., Chicago, III.

DREDGES. (Dipper, Elevator, Hydraunc.)
Austin Machy. Corp., Chicago, Ill.
Bay City Dredge Works, Bay City, Mich.
Bucyrus Co., South Milwaukee, Wis.
Flory Mfg. Co., S., Bangor, Pa.
Marion Steam Shorel Co., Marion, O.
Morris Mach. Wks., Baldwinsville, N. Y.
Northwest Engr. Co., Chicago, Ill.
Osgood Co., The, Marion, Ohio.

DREDGING. (Biver & Harbor Improve-Atlantic, Gulf & Pacific Co., New York.

DRILLING CONTRACTORS. Hughes Specialty Well Drilling Co., Charleston, S. C. Pennsylvania Drilling Co., Pittsburgh.

Artesian Well.
Keystone Driller Co., Beaver Falls, Pa.
Va. Mchy. & Well Co., Richmond, Va. Electric. Clark Jr. Electric Co., Jaa., Louisville, Ky. Independent Pneumatic Tool Co., Chicago.

Pneumatic. Ingersoll-Rand Co., New York, N. Y.

Prespecting.
Ingersoil-Band Co., New York, N. Y.
Keystone Driller Co., Beaver Falls, Pa.
Nagle Electric Co., The W. G., Tolede, O,

Rock and Mining.
Ingersoll-Rand Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.
Wood Drill Works, Paterson, N. J.

DROP FORGINGS.

American Spiral Pipe Whs., Chicago, Ill. Scranton Forging Co., Scranton, Pa. Vogt Mch. Co., Inc., Henry, Louisville.

DROP-FORGING MACHINERY.

DRY DOCKS. (Builders of.) American Bridge Co., New York, N. Y.

Christie Co., L. B., Pittsburgh, Pa.

Gravel. Renneberg & Sons Co., Edw., Baltimore

DRYING MACHINERY. American Process Co., New York, N. Y. Bailey-Lebby Co., Charleston, S. C. Buffalo Forge Ca., Buffalo, N. Y. Christle Co., L. B., Pittsburgh, Pa. Hersey Mfg. Co., South Boston, Mass.

Buffalo Forge Co., Buffalo, N. Y. Moore Dry Kiln Co., Jacksonville, Fla.

DRYKILN EQUIPMENT.

ore Dry Kiln Co., Jacksonville, Fla DUMB-WAITERS. (Electric.)

Capital Lift & Mfg. Co., Columbus, O. Kimball Bres. Co., Council Bluffs, Iowa.

Columbia Wagon & Body Co., Columbia, Pa. Eagle Wagon Works, Auburn, N. Y. Jennings Automatic Dump Body, Inc., Roanoke, Va.

International Clay Mchry, Co., Dayton, O.

Acme Wagon Co., Emigsville, Pa. Austin Mfg. Co., Chicago, Ill. Columbia Wagon & Body Co., Columbia, Pa. Eagle Wagon Works, Auburn, N. Y.

DUST-COLLECTING SYSTEMS. Allen Engr. & Mfg. Co., Savannah, Ga. Buffalo Forge Co., Buffalo, N. Y. Burkett Sheet Metal Works, Hattleeburg, Miss. Savannah Blow Pipe Co., Savannah, Ga. Shreveport Blow Pipe & Sheet Iron Works, Ltd., Shreveport, La.

DUSTPROOFING. (Concrete.) Master Builders Co., The, Cleveland, O. Sonneborn Sons, Inc., L., New York.

DYESTUFFS. Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.

DYNAMITE. (Industrial and Agricul.) Atlas Powder Co., Wilmington, Del.
Du Pont de Nemours & Co., Int., E. I.,
Wilmington, Del.
Hercules Powder Co., Wilmington, Del. DYNAMOS AND MOTORS.

DYNAMOS AND MOTORS.
Charleston Industrial Corp., Nitro, W. Ya.
Clars Jr. Electric Co., Jas., Louisville, Ky.
Fairbanas-Morse & Co., Chicago, Ili.
Hemphill & Co., J. L., Honoxen, N. J.
Israi Electric & Mfg. Co., Mansfeld, O.
Markman Eng. Co., Chicago, Ili.
Motter's Sons. Geo. F., 10rs. Ps.
Nagel Electric Co., The W. Q., Toledo, O.
Nassville Ind., Corp., Jacksonville, Sent.
Nagel Electric Co., The W. Sales Corp., The Washington, D. C.
Triumph Electric Co., Cincinnati, O.
Nagner Electric Coporation, St. Louis,
West'house El. & Mfg. Co., E. Pitusburgh,

EJECTORS. (Sewage.) Lunkenheimer Co., The. Cincinnati. O. Pacific Flush-Tank Co., New York, N. Y.

ELECTRIC LIGHTING FIXTURES. Frink, Inc., I. P., New York, N. Y. Reflectolyte Co., The, St. Louis, Mo.

Generators, Motors, etc.) (Dynam ELECTRIC MACHINERY. (Dynamos, Generators, Motors, etc.)

Allis-Chalmers Mfg. Co., Milwaukee, Wis.

Castle & Wilson, Pittsburgh, Pa.

Charleston Industrial Corp., Nitro. W. Ya.

Charleston Industrial Corp., Nitro. W. Ya.

Clark Jr. Electric Co., Jas., Louisville, Ky.

Coleman-Shoemaker, Inc., Phila, Pa.

Crocket-Wheeler Co., Ampers, N. J.

Electric Co., A. Mfg. Co., Cleveland.

General Electric Co., K. B., Dallas, Tax.

Gregory Electric Co., Chicago, Ill.

Hemphill & Co., J. L., Hoboken, N. Y.

Gottschall & Co., J. L., Hoboken, N. Y.

Legal Electric & Mfg. Co., Manafield, O.

Klein & Co., Nahan, New York, N. Y.

McMillan, A. Chicago, Hamafield, O.

Klein & Co., Nahan, New York, N. Y.

McMillan, A. Chicago, Haginaw, Mich.

Mehan Co., Andrew I., Phila, Pa.

Nagel Electric Co., The W. G., Toledo, O.

Nasnville Ind. Corp., Jacksonville, Tenn.

Nagel Slectric Co., The W. G., Toledo, O.

Nasnville Ind. Corp., Jacksonville, Tenn.

Raje Slectric Co., The W. G., Toledonati, O.

Sales Corp., The. Washington, D. C.

Triumph Electric Co., Horlonnati, O.

Sales Corp., The. Washington, D. C.

Triumph Electric Co., Electric City, N. J.

Wickes Machinery Co., St. Louis, Mo.

ELECTRICAL CONTRACTORS. (Instru-

ELECTRICAL CONTRACTORS. (Instru-Crocker-Wheeler Co., Ampere N J. Zamoiski Co., Joseph M., Baltimore, Md.

ELECTRICAL INSTRUMENTS AND

Doubleday-Hill Elec. Co., Wash., D. C. General Electric Co., Schenectady, N. Y. Zamoiski Co., Joseph M., Baltimore, Md. ELECTRICAL MACHY, REPAIRING, (Motors, Generators, etc.)

Charlotte Elec. Bepair Co., Charlotts, N. C. Chartanooga Armature Wks., Chattanooga. Doubleday-Hill Electric Co., Washington, D. C.

ELECTRICAL WIRING DEVICES. Hubbell, Inc., Harvey, Bridgeport, Co.

FLEVATORS

Am. Electris.

Am. Elect & Mch. Co., Inc., Louisville, Ky.
Capital Lift & Mfg. Co., Columbus, O.
K. C. Elec, Mfg. Co., Kansas City, Mo.
Kimball Bros. Co., Council Bluffs, Isa
McInnerney Co., Council Bluffs, Isa
McInterney Co., Council Bluffs, Isa
McFatt Mchy, Mfg. Co., Charlotte, N. C.
Warsaw Elevator Co., Baltimore, Md.
Westbrook Elevator Co., W. J., Greensbore, N. C.

Am. Elev. & Mch. Co., Inc., Louisville. Ky. Kimbail Bros. Co., Council Bluffs, Iowa. E. C. Elev. Mfg. Co., Charasa City, Mo. Moffatt Mehy. Mfg. Co., Charlotte. N. C. Warsaw Elevator Co., Baltimore, Md. Westbrook Elev. Mfg. Co., Danville, Va. Westbrook Elevator Co., W. J., Greensbore, N. C.

m. Elev. & Mch. Co., Inc., Louisville, Ky., C. Elev. Mfg. Co., Kansas City. Mo. Coffatt Mch.y. Mfg. Co., Charlotte, N. C. arsaw Elevator Co., Baltimore, Md. Cottorok Elev. Mfg. Co., Danville, Va. Festbrook Elev. Mfg. Co., Danville, Va. Festbrook Elevator Co., W. J., Greensbore, N. C.

Portable, for Warshouse, Etc. Dow Co., Inc., The, Louisville, Ky. New Jersey Fdy. & Mach. Co., New York,

Steam Hydraulie.
Ridgway & Son Co., Coatesville. Pa.

ELEVATOR BUCKETS. Caldwell & Son Co., H. W., Chicago. Hendrick Mig. Co., Carbondale, Pa. Link-Beit Co., Philadelphia, Pa.

ELEVATOR CABLES. schen & Sons Rope Co., A., St. Louis.

ELEVATOR ENCLOSURES AND CARS. Dexter Metal Mfg. Co., Camden, N. J. Low Co., inc., The Louisville, Ky. Putur & Co., Baltimore, Md. ENGINEERS.

Agricultural. Morse Agricultural Service, New Orleans,

Mount, W. D., Lynchburg, Va.

Augraisal.

Appraisal.

Allison, Walter A., Philadelphia, Pa.
Amer. Appraisal Co., Milwaukee, Wis.
Avram & Co., Inc., M. H., New York.
Black & Veatch, Kanasa City, Mo.
Crow Inc., Walter, Chicago, Ili.
Day & Zimmermann, Inc., Phila., Pa.
Eavenson & Associates, Howard N.,
Pord. Bacon & Davis, Inc., New York.
Ludlow Engrs., Winston-Salem, N. C.
Meade & Co., Richard K., Baltimore, Md.
Olson, O., Jacksonville, Fis.
Parsons, Klapp, Brincischoff & Douglas,
New York, N. Y.
Tait, Godfrey M. S., Washington, D. C.
Weiler, Francis R., Washington, D. C.

Bridge.
Comcrete-Steel Bridge Co., Clarksburg, W. Va.
Freeland, Boberts & Co., Nashville.
Gardner & Howe, Memphis, Tenn.
Greiner & Co., J. E., Baltimore, Md.
Luten, Daniel B., Indianapolis, Ind.
Robinson & Co., Dwight P., New York.
Spiker & Lose, Atlanta, Wille.
Tenn.
Turner, C. A. P., Minneapolis, Minn.
Wallace & Crenshaw, Knoxville, Tenn.

Gement Mill.

Meado & Co., Richard K., Baltimore, Md.

Chamles! Dow & Smith, New York, N. Y. Luehrs Co., The Daniel M., Clereland, O. Markel, F. E., Atlanta, Ga. Meade & Co., Richard K., Baltimore, Md. Mount, W. D., Lynchburg, Va. Pittsburgh Testing Lab., Pittsburgh, Pa.

Civil. Ashworth, F. K., Mismi, Fla.
Ayres & Miller, Memphis, Tenn.
Batson, S. R., Birmingham, Ala.
Black & Veatch, Kansas City, Mo.
Camp & Associates, E. V., Atlanta, Ga.
Carolina Engr. Co., The, Wilmington,
N.C. Clark & Krebs, Charleston, W. Va.
Clark & Krebs, Charleston, W. Va.
Day & Zimmerrann, Inc., Philadelphia,
Gardner & Howe, Memphis, Tenn.
Greiner & Co., J. E., Baltimore, Md.
Hills Co., George B., Jacksonville, Fla.
Klyce, B. H., Nashville, Tenn.
M. O. & W. Eng. Corp., Norton, Va.
Parkes Eng. Co., Pine Bluff, Ark.
Steel, Jr., J. A., Knowlile, Tenn.
White Engr. Corp., The J. G., New York,
Willis, W. N., Spartanburg, B. C.

Conduit Systems, (Underground.) George Constr. Co., Philadelphia,

Bims.

Byllesby Engineering & Management Corp., Chicago, Ili.
Cooper & Co., Hugh L., New York.
Garcher & Howe, Meraphis, Tenn.
Carber & How Williams B., Carbotte Mass.
Parsons, Klapp, Brinckerhoff & Douglas,
New York, N. Y.
Robinson & Co., J. E., Greenville, S. C.
Tucker & Laxton, Charlotte, N. C.
Weller, Francis R., Washington, D. C.
White Engr. Corp., The J. G., New York.

Drainage and Irrigation,

Drainage and irrigation.

Ashworth, F. K., Miami, Fia.

Ayres & Miller, Memphis, Tenn.

Canal Construction Co., Memphis, Tenn.

Carolina Engr., Co., The, Wilmington,

N. C.

Day & Zimmermann, Inc., Phila., Pa.

Ford, Bacon & Davis, Inc., New York.

Hills Co., George B. Jacksonville, Fla.

Audiow Engr., Winston-Salem, N. C.

Addiow Engr., Winston-Salem, N. C.

McWilliams Co., I.C., Memphis, Tenn.

Oison, O., Jacksonville, Flan.

Parkes Eng. Co., Pine Bluff, Ark.

Efficiency.

Meade & Co., Richard K., Baltimore, Md. Electrical.

Eisetrieal.

Birgs Engr. Co., W. E., Knorville, Tenn.
Cooper & Co. Hugh L., New York.
Day & Zimer L., New York.
Day & Zimmermann, Inc., Phila, Pa.
Earenson & Associates, Howard N.,
Pittsburgh, Pa.
George Constr. Co., Philadelphia.
Huntington & Guerry, Greenville, S. C.
Lee, William S., Charlotte, N. C.
Lide, Martin J., Birmingham, Ala.
Lushn's Co., The Daniel M., Cleveland, O.
Alontor's Son & Callenta, Gar.
Motter's Son & Callenta, Carlotte, P.
M. O. & W. Engr. Corp., Norton, Va.
Robinson & Co., Inc., Dwight P., N. Y.
Stone & Webster, Inc., Boston, Mass.
Tucker & Laxton, Charlotte, N. C.
Wiley & Wilson, Lynchburg, Va.

Electric-Light and Power Plants. Archer & Co., E. T., Kansas City, Mo. Black & Veatch, Kansas City, Mo.

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you. Byllesby Engineering & Management Corp., Chicago, Ill. Camp & Associates, E. V., Atlanta, Ga. Cooper & Co., Hugh L., New York. Cooper & Co., Hugh L., New York. Bisert, Hermann, Balto., Mc. Hermann, Balto., Mc. Manington, D. C. Lee, William S., Charlotte, N. C. Long Co., M. A., Baltimore, Ophula & Hill, Inc., New York. Parsons, Klapp, Brinckerhoff & Douglas, New York, N. Y. Bellimore, Md. Poest, James, Baltimore, Md. Poest, James, Baltimore, Md. Poest, James, Baltimore, Md. Scofield Engineering Co., Phillastephils Scofield Engineering Co., Philastephils Stone & Webster, Inc., Boston, Mass Tucker & Laxton, Charlotte, N. C. Weller, Francis R. Washington, D. C. Weller, Francis R. Washington, D. C. Weller, Francis R. Washington, D. C. White Engr. Corp., The J. G., New York White Engr. Corp., The J. G., New York White, Gilbert C., Durham, N. C.

Allison, Walter A., Philadelphia, Pa.
Byllesby Engineering & Management Corp.,
Chicago, Ill.
Ford, Bacon & Davis, Inc., New York.

Clark & Krebs, Charleston, W. Va. Crow Inc., Waller, Chicago, Ill. Froehling & Robertson, Richmond, Va. Meade & Co., Richard K., Baltimore, Md.

Heating. Crawford & Slaten, Atlanta, Ga. Wiley & Wilson, Lynchburg, Va.

Ayres & Miller, Memphis, Tenn, Biaca & Vestch Kansan City, Mo. Markel, F. E., Atlanta, Ga.

Hydre-Electris.

Engineering & Management Corp., Chicago, Ill.
Cooper & Co., Hogh L. New York.
Law. Co., Hogh L. New Hydr.
Man. Charlotte R. C.
Ludlow Engra., Winston-Salem, N. C.
Main. Chas T. Boston, Mays.
Mess & Mees, Charlotte, N. C.
Parsons, Kiapp, Brincerhort & Douglas,
New York, N. Y.
Roumson & Co., Dwight P., New York
Sanders & Sweeney, Anderson, S.
Sirrine & Co., J. E., Greenville, S. C.
Tucker & Laxton, Charlotte, N. C.
Weller, Francis R., Washington, D. C.
White Engr. Cyp., The J. G., New Yors Hydro-Electric.

Housing.
Minter Homes Co., Greenville, S. C.

les-Makine Plants.

Burrows, E. A., Chicago, Ill. Ophuls & Hill, Inc., New York. Posey, James, Baltimore, Md.

Industrial Plants.

Avram & Co., Inc., M. H., New York. Biggs Engr. Co., W. E., Knoxville, Tann. Burrows, E. A., Chicago, Ill. Concrete Steel Bridge Co., Clarksburg, W. Va. Burrows, E. A., Chicago, Ill.
Concrete Steel Bridge Co., Clarksburg,
W. Vs.
Concrete Steel Bridge Co., Clarksburg,
W. Vs.
Crow Inc., Waller, Chicago, Ill.
Day & Zimmormann, Inc., Phila., Pa.
Doullut & Williams Co., New Orleans.
On the Workshop Co., Phila., Pa.
Doullut & Williams Co., New Orleans.
Gardner & Howe, Memphis, Tenn.
Hills Co., George B., Jacksonville, Pia.
Huntington & Guerry, Greenville, Pa.
Main. Chas. T. Boston, Mass.
MacDevitt-Pienning Co., Chattamongs, 10Main. Chas. T. Boston, Mass.
MacDevitt-Pienning Co., Chattamongs, 10Mount, W. D., Lynchburg, Vs.
Mount, W. D., Lynchburg, Vs.
Possy, James Raitlmore, Md.
Reid, J. G., Chicago, Ill.
P., New York,
Rust Engineering Co., Philadelphia.
Shrarer, C. S., Memphis, Tenn.
Birrine & Ca., J. E., Greenville, S. C.
Smith Co., The, Birminsham, Ale.
Stone & Webere, Inc., Boston, Mass.
Turner, C. A., Minneapolis, Tenn.
White Engr. Corp. The J. G., New York
Wildmer Engineering Co., St. Louis, Mo.
Willis Engr. Corp. The J. G., New York
Wildmer Engineering Co., St. Louis, Mo.
Willis Engr. Corp. The J. G., New York
Wildmer Engineering Co., St. Louis, Mo.

Inspection and Tests. Arram & Co., Inc., M. H., Naw York
Berkeley, W. N., Baltimore, Md.
Camp & Associates, E. Y., Arlanta, GCrow Inc., Waller, Chicago, III.
Drow & Smith. New York, N. Y.
Freshling & Robertson, Richmond, Va.
Hunt & Co., Robt. W., Chicago, III.
Pittsburgh Testing Lab., Pittsburgh, Fa.

Iron and Steel Plant. Smythe Co., S. R., The, Pittsburgh, Pa.

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you

Landscape.

Ashworth, F. K., Miami, Fla.
Draper, E. S., Charlotte, N. C.

Ayres & Miller, Memphis, Tenn. Parkes Eng. Co., Pine Bluff, Ark.

Lighting.

Byllesby Engineering & Management
COPD. Chicago, Ill.
Ford. Bacon & Davis, Inc., New York.
Huntington & Guerry, Greenville, S. C.
McCrary Co., J. B., Atlanta, Ga.
Posey, James, Baltimore, Mc.
Wiley & Wilson, Lynchburg, Va.

Limekila, Meade & Co., Richard K., Baltimore, Md, Mount, W. D., Lynchburg, Va.

Management. Hill, Norman A., Baltimore, Md.

Bill, Norman A., Baltimore, Md.

Mechanical.
Bigsz Engr. Co., W. E., Knoxville, Tenn.
Camp & Associates, E. V., Atlanta, Ga.
Day & Zimmermann, Inc., Philadelphia,
Eisert, Hermann, Balto, Md.
George Constr. Co., Philadelphia,
Lee, William S., Charlotte, N. G.
Lidob Martin, P. D. Baltimore, M. A.
Lidob Martin, P. D. Baltimore, Md.
Martic, P. E., Atlanta, Ga.
Meade & Co., Richard K., Baltimore, Md.
Mes & Mess, Charlotte, N. G.
Mount, W. D., Lynchburg, Va.
M. O. & W. Engr. Corp., Norton, Va.
Posey, James, Baltimore, Md.
Talt & Nordmeyer Engr. Co., St. Louis.
Wiley & Wilson, Lynchburg, Va.
Wilson, Lynchburg, Va.

Meade & Co., Richard K., Baltimore, Md. Tait, Godfrey M. S., Washington, D. C.

Mining.
Clark & Krobs, Charleston, W. Va.
Levenson & Associates. Howard N.,
Pittsburgh, Pa.,
M. O. & W. Engr. Corp., Norton, Va.
Tait, Godfrey M. S., Washington, D. C.

Tait, Godfrey M. S., Washington, D. C.

Albright & Mebus, Philadelphia, Pa.
Archer & Co., E. T., Karass City, Mo.
Batton, S. R., Birmingham, Als.
Camp & Associates, E. V., Atlanta, Ga.
Clark & Krebs, Charleston, W. Va.
Doullut & Williams Co., New Orleans.
Dow & Smith, New York, N. Y.,
George Constr. Co., Philadelphia.
Elyes, B. H., Nashville, Tenn.
Ludlow Engineers, Winston-Salem, N. C.
McCalla & Co., J. B., Knoxville, Tenn.
McCrary Co., J. B., Atlanta, Ga.
White, Gilbert C., Durham, N. C.
Pavine and Ragda.

Paving and Roads. Paving and Reads.
Albright & Mebus, Philadelphia, Pa.
Archer & Co., E. T., Kansas Chy, Mo.
Batson, S. B., Hirmingham, Ala.
Carme & Associates, E. V., Atlanta, Ga.
Caroina Engr. Co., Wilmington, N. C.
Dow & Smith, New York, N. Y.
Freeland, Roberta & Co., Nashville,
Klyce, B. H., Nashville, Tenn.
Ludlow Engineers, Winston-Salem, N. C.
Parkes Eng. Co., Pine Bluff, Ark,
Sanders & Eweeney, Anderson, S. C.
Wallace & Crenshaw, Knoxville, Tenn.
White Gilbert C., Durham, N. C.
Willis, W. N., Spartanburg, S. C.

Public Service Properties. Public Service Properties.

Avram & Co., Inc., M. H., New York.
Byliesby Engineering & Management
Corp., Chicago, Ill.
Cooper & Co., Hugh L., New York.
Day & Zimmermann, Inc., Philia, Per.
Ford, Bacon & Davis, Inc., New York.
Farsons, Klapp, Brincherhoff & Douglas,
Robinson & Co., Dwight P., New York.
Scodeld Engineering Co., Philadelphia,
Stone & Webster, Inc., Boston, Mass,
Weller, Francis R., Washington, D. C.
White Engr. Corp., The J. G., New York.

Railroad, Clark & Crebs, Charleston. W. Va. Mees & Mees, Charlotte, N. C. Willis, W. N., Spartanburg, S. C.

Refrigerating. Baker Ice Machine Co., Omaha, Nebr. Burrows, E. A., Chicago, Ill. Hawley, Chas, B., Washington, D. C. Markel, F. E. Atanta, Ga. Ophulus & Hill., Inc., New York. York Mig. Co., York, Pa.

Reinferced Concrete. (Bridges, Buildings, Etc.) Ayres & Miller, Memphis, Tenn,
Camp & Associates, E. V., Atlanta, Ga.
Carolina Engr. Co., Wilmington, N. C.
Concrete Steel Bridge Co., Clarksburg,
Fouth. Concrete Steel Bridge Co., Clarksburg, W. Va.
Foullhoux, J. A., New York, N. Y.
Foullhoux, J. A., New York, N. Y.
Freeland, Boberts & Co., Nashville,
Fuston, Waiter J., Dallas, Tex.
Gardner & Howe, Memphis. Tenn.
Gretier & Co., J. E., Baltimore, Md.
Hutton & Schreffler, Raleigh, N. C.
Long Co., M. A. Baltimore, Md.
Hutton & Schreffler, Raleigh, N. C.
Long Co., M. A. Baltimore, Md.
HoEbevitt-Fleming Co. Chattanoogs, Tenn.
Meade & Co., Bichard K., Baltimore, Md.
Olson, O., Jackssonville, Fla.
Parsons, Klapp, Brinckerhoff & Douglas,
New York.
Robinson & Co., Dwight P., New York.
Robinson & Co., Pittsburgh, Pa.
Banders & Sweeney, Anderson, S. C.

Smith Ca., The, Birmingham, Ala.
Spiker & Lose, Atlanta, Ga.
Steel, Jr., J. A., Knovville, Tenn.
Tucser & Laxvon, Charlotte, N. C.
Turner, C. A. P., Minneapolis, Minn.
White Engr. Corp., The J. G., New York,
Willis, W. N., Spartanburg, B. C.

Roofing. Kansas City Slate & Tile Boofing Co., Kansas City, Mo.

Kansas City, Mo.

Sewerage and Water-Weeka.

Albright & Meous, Philadelphia, Pa.
Archer & Co., E. T., Kansas City, Mo.
Black & Vestch, Kansas City, Mo.
Black & Vestch, Kansas City, Mo.
Camp & Maccolates, William, Mo., N. C.
Ford, Bacon & Davis, Inc., New York,
Hills Co., George B., Jacksonville, Fia.
Klyce, B. H., Nashville, Tenn.
Ludlow Engineers, Winston-Salem, N. C.
McCalla & Co., J. B., Knoxville, Tenn.
Mees & Mees, Charlotte, N. C.
Olson, O. Jacksonville, Fia.
Bull, Ark,
Posey, Janses, Baltimore, Md.
Banders & Sweeney, Auderson, B. C.
Smith Co., The, Birmingham, Als.
Tucker & Laxton, Charlotte, N. C.
Willies Engr. Corp., The J. G., New York.
White, Gilbert C., Durham, N. C.
Willis, W. N., Sparaaburg, B. C.

Sawerage Dispessi Pinnis Ludiow Engineers, Winston-Salem, 16 McCalia & Co., J. B., Knoxville, 16 McCalia & Co., J. B., Atlanta, Ga. Parkes Eng. Co., Pine Bluff, Ark. Posey, James, Baltimore, Md.

Steel Work and Rolling Mills. Smythe Co., S. R., The, Pittsburgh, Pa.

Birustural Steel.
Freeland, Roberts & Co., Nashville.
Fuston, Waiter J., Dallas, Tex.
Hills Co., George B., Jacksonville, Fla.
Hutton & Schreffer, Raleigh, N. C.,
ingails fron Works Co., Birmingham.
Sheaver, C. E., Memphis, Yenn.
Spiker & Loss, Atlanta
Purper, C. A. F., Minneapelis, Minn.

Textile Mills.
Long Co., M. A., Baltimore.
Main, Chas. T., Boston, Mass.
Sanders & Sweeney, Anderson. S. C.
Sirrine & Co., J. E., Greenville, S. C.

Ventilating and Heating.
Biggs Engr. Co. W. E., Knoxville, Tenn.
Markel, F. E., Atlanta, Ga.
Wilsy & Wilson, Lynchburg, Va.

ENGINES.

Compressed Air.

Dake Engine Co., Grand Haven, Mich.

Carilas.
Chuse Engine & Mfg. Co., Mattoon, Iil.
Sun Shipbuilding Co., Chester, Pa.,
Vilter Mfg. Co., Milwaukee, Wis.

Gas and Gaseline.

Bessemer Gas Engine Co., Grove City, Pa.
Climax Engr. Co., Clinton, Iowa.
Construction Machinery Co., Waterioo, Ia.
Domestic Engine & Pump Co., Shippensburg. Fa.
Barbonks-Acroe & Co., Chicago, III.
Barbonks-Acroe & Co., Chicago, III.
Sarbonks-Acroe & Co., Chicago, III.
Sarbonks-Acroe & Co., Chicago, III.
Clinton Co., Springfield. O.
National Transit Pump & Mch. Co., Oil
City, Pa.

Hoisting Engine Co., J. S., Newark N J. National Hoisting Eng. Co., Harrison, N. J. stroudsburg Engine Was., Stroudsburg, Pa.

Curtis Bay Copper & Iron Works, Inc., Baltimore, Md. Murray Iron Works, Burlington, Ia.

Anderson Fary. & Mch. Co., Anderson. Anderson Füry. & Mch. Co., Anderson. Ind.
Bessemer Gas Eng. Co., Grove City, Pa.
Buckeye Machine Co., The, Lima, O.
Fairbanks-Morse & Co., Chicago, Ill.
Foos Gas Engine Co., Springfield, O.,
Kelnos, Bobert P., New York, N. Y.
McMillan, A., Chicago, Ill.
National Transit Pump & Mch. Co., Oll
City, Pa.
Power Mfg Co., The, Marion, O.
Tips Foundry & Mch. Co., Austin, Tex.
Worthington Pump & Mchy. Corp., N. X.

Steam,
Brownell Co., Milwaukee, Wis,
Brownell Co., Daysen, O.
Caldwell & Co., E. R., Bradford, Pa
Chuse Engine & Mig. Co., Mattoon, Ill.
Cole Mig. Co., B. D. Newban Gs.
Corinth Mely, Co., Corinth, Miss.
Eris City Iron Works. Erie, Pa.,
Erie Funp & Eng. War, Medins, N. Y.
marris Bros. Co., Chicago, Ill.
Busson, Sanwood & Gamble Co., CinBusson, Sanwood & Gamble Co., Cin-Houston, Stanwood & Gambre Co.,

Lord Co., James, Springfield, O.

Lord Co., James, Springfield, O.

Lord Co., James, Springfield, O.

Lord Co., Lord Co., Angusta,

McMillan, A., Chicago, III.

Morris Meh. Was, Baldwinsville, N. T.

Morter's Sons, Geo. F., Tork, Pa.

Mutray Iron Wiss. Co., Burlington, Iowa.

National Transit Pump & Mcn. Co., Oli

City Pa.

Bandle Machinery Co., Cineinnett, O.

Schoffeld's Iron Works Marcin Gas

Steering. Mundy Hoisting Engine Co., J. S., Newark, N. J.

Traction. Austin-Western Road Mehy. Co., Chicago,

Smith Co., Oscar T., Baltimore, Md. Young & Selden Co., Baltimore, Md.

EXCAVATING MACHINERY. Austin Machinery Corp., Chicago, Iil.
Bay City Dreage Works, Bay City, Mich.
Bucyrus Co., South Milwaukee, Wis.
Erie Steam Shovel Co., (Ball Engine
Co.), Erie, Pa.
Hayward Co., The, New York, N. Y.
Keystone Driller Co., Beaver Falls, Pa.
Marion Steam Shovel Co., Marion, O.,
Monighan Machine Co. Chicago, Ill.
Northwest Engr. Co., Chicago, Ill.
Osgood Co., The, Marion, O.
Owen Bucket Co., The, Cleveland, O.

EXCAVATORS.

Cableway, Dragline. Bucyrus Co., South Milwaukes, Wis.
Byers Machine Company, Ravenna, O.
Erie Steam Shovel Co., (Ball Engine
Co.), Erie, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Marion Steam Shovel Co., Marion, O.
Monighan Machine Co., Chicago, Ill.
Sauerman Bros., Chicago, Ill.

Buckeys Traction Ditcher Co., Findlay, O.
Erie Steam Showel Co., (Ball Engine
Co.), Erie, Pa.
Hayward Co., The, New York, N. T.
Keystone Driller Co., Beaver Falls, Pa.
Monighan Machine Co., Chicago, Ili.

Abendroth & Root Mfg. Co., Newburgh, N. Y. American Spiral Pipe Wks., Chicage, Ill.

EXIT DEVICES. Vonnegut Hardware Co., Indianapolis.

EXP. METAL LATH REINFORCING Southern Steel Prod. Co., Richmond, Va., Virginia Steel Supply Co., Richmond, Va., Wickwire-Spencer Steel Corp., New York,

EXPLOSIVES. Atlas Powder Co., Wilmington, Del. Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del. Hercules Powder Co., Wilmington, Del.

FACTORY COLUMNS. Cordele Sash, Door & Lumber Co., Cordele, Ga.

FACTORY SITES. (Town and Bailroad.) (See Industrial, Agricultural and Commercial Opportunities.) Birmingham, Ala. City Advertising Dept., Jacksonville. Fla. Martien & Co., Wm., Baltimore, Mu Merchants & Manufacturers Assn., Louisville, Kg.

FARM WAGONS. Acme Wagon Co., Emigsville, Pa. Columbia Wagon & Body Co., Columbia,

FEED-WATER HEATERS AND PURI-American Water Softener Co., Phila., Pa Brownell Co., Dayton, O. Erie City Iron Works Co., Erie, Pa. Worthington Pump & Mchy. Corp., N. Z.

FELT. (Building Sheathing.)
Barrett Ca., New York, N. Y.

FENCING.

Field and Industrial, (Wire Woven.)

Amer. Fence Const. Ca., New York. American Steel & Wire Co., Chicago, Ili. Anchor Post Iron Works. New York, N. Y. Midvale Steel & Ordnance Co., Phila. Pittsburgh Steel Co., Pittsburgh, Pa. Wokwire-Spencer Steel Corp., New York.

Galvanized, Concrete Amer. Sheet & Tin Plate Co., Pittsburgh.

FENCING. ENTRANCE GATES. (Iron. Steel Wire).
Amer. Pence Const. Ca. New York.
American Steel & Wire Co., Chicago,
Anchor Post Iron Works. New York, N. Y.
Dufur & Co., Baltimore, Md.
New Jersey Wire Cisch Co., Trenton, N. J.
Rewart Iron Was Co. Inc. Chicinnati

FERTILIZER MACHINERY. Charleston Dry Dock & Mch. Co., Charleston, S. C.
Raymond Bros. Impact Pulv. Co. Chicago.

FILES. Barnett Co., G. & H., Phila. Pa. Nicholson File Co., Providence, B. I.

FILTERS. For Domestie & Industrial Purposes American Water Softener Co., Phila., Pa.
International Filter Co., Chicago, Ill.
New York Continental Jaweil Filtration
Co., The Nutley, N. J.
Roberts Filter Mfg. Co., Darby, Pa.
Scalfe & Sons Co., Wm. B., Pittsburgh.

FINANCING. Electric Bond & Share Co., New York. Miller & Co., G. L., Atlanta, Ga.

FIRE GLAY.

Anniston Refractories Co., Oxford, Ala.
Ashland Fire Brick Co., Ashland, Ky.
Cambria Clay Products Co., Blackfork, O.
Cannelton Sewer Pige Co., Cannelton, Ind.
Green Fire Brick Co., A. F., Mexico, Mo.
Green Fire Brick Co., A. F., Mexico, Mo.
Ohlo Refractories Co., Too, Fondion, O.
Portsmouth, Refractories Co., Tisk, Portamouth, O. Portsmouth Refractories Co., The, Portsmouth, O. Walsh Fire Clay Prod. Co., St. Louis.

FIRE CLAY FLUE LININGS. Stevens Bros. & Co., Stevens Pottery, Ga.

Chesapeake Iron Works, Baltimore, Md. Dow Co., Inc., The, Louisville, Ky.

FIRE-EXIT LATCHES. Vonnegut Hardware Co., Indianapolis.

FIRE EXTINGUISHERS. Myers & Bro. Co., The F. E., Ashland, O.

FIREPLACES. (Brick and Tile.)
Hood Brick Co., B. Mifflin, Atlanta, Ga.

FIREPROOF BUILDING MATERIAL. Bannon Pipe Co., Louisville, Ky. Robertson Co., H. H., Pittsburgh, Pa. Marblelold Co., The, New York, N. Y.

FIREPROOF DOORS AND SHUTTERS. Dahlstom Metallie Door Co., Jamestown, N. Y. Kinnear Mfg. Co., Columbus, O. Moeschi-Edwards Corrug. Co., Cincinnati. Richmond Fireproof Door Co., Richmond, Ind.

Tin Clad. Lenderking, Philip H., Baltimore, Md.

FIREPROOFING. (Brick and Tile.) Hood Brick Co., B. Mifflin, Atlanta, Ga. Oconee Bk. & Tile Co., Milledgeville, Ga.

FITTINGS. (Wire Rope.) Leschen & Sons Rope Co., A., St. Louis

FIXTURES. (Electric Lighting.) Frink, Inc., I. P., New York, N. Beffectolyte Co., The, St. Louis, M.

FLANGES AND FLANGED FITTINGS. Grinnell Co., Providence, R. I.

FLANGES. (Iron and Steel.) Amer. C. I. Pipe Co., Birmingham, Ala.
American Spiral Pipe Wiss., Chicago, Ill.
Dart Mig. Co., E. M., Providence, B. I.
Natl. Cast Iron Pipe Co., Birmingham.
U. S. Cast Iron Pipe & Foundry Co.,
Burlington, N. J.
Vogt Machine Co., Inc., Henry, Louisville.
Wood & Co., B. D., Philadelphia, Pa.

FLOORING.

Johns-Manville, Inc., H. W., New York, Marbleloid Co., The, New York, N. Y.

Creaseted Blocks. Long-Bell Lumber Co., Kansas City, Mo.

Hardwood, Maple, Oak Bartholomew Hardwood Co., E., Chicago, Boone Fork Mfg. Co., Johnson City, Term. Long-Bell Lumber Co., Kansas City, Mo. McEwen Lumber Co., Norfolk, Va.

FLOOR HARDENER. (Concrete.) Master Builders Co., Cleveland, O. Sonneborn Sons, Inc., L., New York.

FLOOR PLATES AND STAIR TREADS. Mitchell-Tappen Ca., New York, N. Y. Ryerson & Son, Jos. T., St. Louis and New York.

FLOUR AND GRIST-MILL MCHY, AND SUPPLIES. Caldwell & Son Co. H. W. Chicago Ill.

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

Owenshorn Sewer Pine Co., Owenshorn, Kr.

Ocones Br. & Tile Co., Milledgeville, Ga.

FLUSH-TANK SIPHONS. Pacific Flush-Tank Co., New York, N. Y.

Suffaio Force Co., Buffaio, N. Y.

Bethlehem Steel Co., Bethlehem, Pa. Columbus Forge & Iron Co., The, Columbus

bus, O. Scranton Forging Co., Scranton, Pa. Musiler Metals Co., Port Huron, Mich.

Railway and Industrial.
Laclede Steel Co., St. Louis, Me.
Midvale Steel & Ordnance Co., Phila

FORMS, STEEL.

For Concrete Culverts, Roads, Streets, Sidewalks, Tiles. Blaw-Knox Co., Pittsburgh, Pa. uncrete Steel Co., New York, N. T. Heltsel Steel Form & Iron Co., Warren, O.

Gurb. Heltsel Steel Form & Iron Co., Warren, O. Curb and Gutter. Heltzel Steel Form & Iron Co., Warren, O.

FORM CLAMPS Concrete Steel Co., New York, N. Y.

FOUNDRY EQUIPMENT & SUPPLIES. ill & Griffith Co., The, Cincinnati, O

FOUNDRY FACINGS. (Tale and Soap-Mill & Griffith Co., The, Cincinnati, O.

FOUNDRY AND MACHINE SHOPS. Charleston Dry Dock & Mch. Co., Charleston, S. C. Glamorgan Pipe & Fdy. Co., Lynchburg, Va. Va.,
Goldens' Fdy. & Mch. Co., Columbus, Ga.
Grainger & Co., Inc., Louisville, Ky.
Lombard Iron Wiss & Sup. Co., Augusta.
Sun Shipbuilding Co., Chester, Pa.
Titus, E E., Petersburg, Va.

FRAMES. (Automobile and Truck.) Sharon Pressed Steel Co., Sharon, Pa.

ori Drawn Metals Co., Chicago Hts., Ill.

FURNACE-DOOR ARCH. en Fire Brick Co., A. P., Mexico, Mo.

For Industrial Purposes. Smythe Co., The S. R., Pittsburgh, Pa.

FURNACE LININGS. Green Fire Brick Co., A. P., Mexico, Mo.

FURNITURE. (Shop.)
Western Tool & Mfg. Co., Springfield, O.

FUSES, (Electrical.) Johns-Manville, Inc., H. W., New York.

GALVANIZED STEEL AND IRON. Amer. Rolling Mill Co., Middletown, O. Amer. Sheet & Tin Plate Co., Pittsburgh, McCalla Co., Harold, Philadephia, Pa. Bepublic Iron & Steel Co., Youngstown, Wheeling Steel Prod. Co., Wheeling, W. Republic and Wheeling Steel Prod. Co., Wa., Wheeling Steel Co., Alan, Phila., Pa. Youngstown Sheet & Tube Co., Youngstown, O.

GALVANIZING KETTLES. ng Iron Was. Co., Millard F., Phila,

GAS COMPRESSORS. ingersell-Rand Co., New York, N. Y.

GASOLINE AND KEROSENE. Empire Refineries, Inc., Tulsa, Okla Gulf Refining Co., Pittsburgh, Pa. Sapulpa Refining Co., Tulsa, Okla. Texas Co., The, New York, N. Y.

GAS PLANTS. Morgan Construction Co., Worcester, Mass.

GAS PRODUCERS. Morgan Construction Co., Worcester, Mass. Smith Gas Engr. Co., Dayton, O. Smythe Co., The S. B., Pittsburgh, Pa. Westinghouse El. & Mig. Co., E. Pittsburgh. 700d & Co., R. D., Philadelphia, Pa

GATES. (Automatic Drainage.) Armeo Cul. & Flume Mfr. Asso., Chicago.

Caldwell & Son Co., H. W., Chicago. De Laval Steam Turbine Co., Trente N. J. N. J.

Earle Gear & Mch. Co., The, Phila., Pa.
Fawcus Machine Co., Pittsburgh, Pa.
General Electric Co., Schenectady, N. Y.
Niles-Bement-Pond Co., New York, N. Y. Fawers Macnine Co., Pittsburgh, Pa.

GEAR CUTTING Fawcus Machine Co., Pittsburgh, Pa. Universal Machine Co., Baltimore, Md.

GEOLOGISTS. Crow Inc., Waller, Chicago, Ill.

Froehling & Rocertson, Richmond, Va.

M. O. & W. Engineering Corp., Norton, Va.

GLASS. Piats, Etc..
Binswanger & Co., Memphis, Tenn.
Hires-Turner Glass Co., Washington, D. C. Window,
American Window Glass Co., Pittsburgh.

GLUE, (Marine.) Binney & Smith Co., New York, N. Y.

GRADERS.

Elevating.
Austin Mfg. Co., Chicage, Ill. Turbine.
Koehring Co., Milwaukee, Wis. GRAIN ELEVATOR SUPPLIES Caldwell & Son Co., H. W., Chicago, Weller Mfg. Co., Chicago, Ill.

GRAPHITE, Dixon Crucible Co., Jos., Jersey City, N. J.

GRATES AND GRATE BARS. Arnstrong Mfg. Co., Springfield, O. Covington Mach. Co., Inc., Covington, Va. McClave-Brooks Co., Scranton, Pa. Murray Iron Works Co., Burlington, Ia. Thomas Grate Bar Co., Birningnam, Ala. Vogt Mch. Co., Inc., Henry, Louisville.

GRATE BACKS. Cannelton Clay Prod. Co., Cannelton, Ind. GRATINGS. (Steel.)

Mitchell-Tappen Co., New York, N. Y. GRAVEL. (Roofing and Road.)

American Limestone Co., Knoxville, Tenn. Arundel Corp., The. Baltimore, Md. Boxley & Co., W. W., Roanoke, Va. Friend & Co., Inc., Petersburg, Va. Kirspatrick Sand & Cement Co., Birmingham, Ala.
Petersburg Sand & Gravel Corp., Petersburg, Va.

GRAVITY CONVEYOR CHUTES. Co., Inc., The, Louisville, Ky.

GRAVITY ROLLER CONVEYORS Dow Co., Inc., The, Louisville, Ky. Taplin-Rice-Clerkin Co., Akron, O.

GREASE. Cook's Sons, Inc., Adam, New Yors

GREASE CUPS. Cook's Sons, Inc., Adam, New York. Lunkenheimer Co., The, Cincinnati, O.

GREASE AND LUBRICATING COM-Borne-Scrymser Co., New York, N. Y. Cook's Sons, Inc., Adam, New York, Robinson & Son Co., Wm. C., Balto., Md. Texas Co., The, New York, N. Y.

GRINDERS. (Gypsum, Limestone, Etc.) Baymond Bros. Impact Pulv. Co., Chicago. Williams Patent Crusher & Pulverizer Co.,

GRINDING MACHINERY, (Flexible Strand & Co., N. A., Chicago, Ill.

GRINDING WHEELS. Carborundum Co., Niagara Falls, N. Y.

Atlas Powder Co., Wilmington, Del. Du Pont de Nemoure & Co., Inc., E. I., Wilmington, Del. Hercules Powder Co., Wilmington, Del. HANGERS

Doors. Richards-Wilcox Mfg. Co., Aurora, Ill. Wood's Sons Co., T. B., Chambersburg

HARBOR IMPROVEMENTS. Atlantic, Gulf & Pacific Co., New York.

negut Hardware Co., Indianapolis HEATERS. (Asphalt.) Cummer & Son, F. D., Cleveland, O.

HARDWARE. (Builders.)

HEATING APPARATUS - ENGINEERS Allen Engr. & Mfg. Co., Savannah, Ga. Beverley Heating Co., B, C., Bichmond, Bererley Beating Co., Va. Va. Va. Buffalo Forge Co., Buffalo, N. Y. Grinnell Co., Providence, R. I. Hammond Heating Co., Cincinnati, O. Motter's Sons, Geo. F., York, Pa.

HOISTING MACHINERY HOISTING MACHINERY.
Alies Engineering Co., Philadelphia, Pa.
Dake Engine Co., Grand Haven, Mich.
Lidgerwood Mfg. Co., New York, N. T.
Mundy Hoisting Engine Co., J. S.,
Newark, N. J.
National Hoisting Eng. Co., Harrison, N. J.
Patten Mfg. Co., Chiattanooga, Tam.
Shepard Electric Crans & Hoist Co.,
Montour Falls, N. Y.
Stroudsburg Engine Whs., Stroudsburg, Pa.
United Iron Works, Kaussa City, Ma.

Air, Pertable, Sullivan Machinery Co., Chicago, Ill. Chain.

Box & Co., Alfred, Inc., Phila., Pa. Dake Engine Co., Grand Haven, Mich, Beading Chain & Block Corp., Reading Pa. Wright Mfg. Co., Lisbon, O.

Bor & Co., Alfred, Inc., Phila., Pa.
Bor & Co., Alfred, Inc., Phila., Pa.
Byers Machine Company, Ravenna, O.
Elect, Hoist & Derrick Co., Hog Island, Pa.
Flory Mfg. Co., S., Bangor, Pa.
Lidgetwood Mfg. Co., New York, N. Y.
Link-Belt Co., Philadelphia, Pa.
Mundy Hoisting Engine Co., J. S., Newark,
N. J. N. J.
Patten Mfg. Co., Chattanooga, Tenn.
Reading Chain & Block Corp., Reading,
Pa.

Pa.
Shepard Electric Crane & Hoist Ca.,
Montour Falls, N. Y.
United Iron Works, Kansas City, Mc. United Iron Works, Kansas City, Mo. Sasolina.

Byers Machine Company, Ravenna, O. Domestic Engine & Pump Co., Shippens burg, Pa.

Lidgerwood Mfg. Co., New York, N. Y. Palten Mfg. Co., Chattanoogs, Tenn.

Amer. Cement Mich. Co., Inc., Keokuk, Ia.
Dake Engine Co., Grand Haven, Mich.
Lidgerwood Mfg. Co., New York, N. T.
Mundy Holuting Engine Co., J. B.,
Newark. N. J.
Stroudsburg Engine Wiks, Stroudsburg. Pa.
United Iron Works. Kansas City, Mo.

HOLLOW BUILDING TILE. Chattanooga Sewer Pipe Works, Chatta-nooga, Tenn. Oconee Br. & Tile Co., Milledgeville. Ga. Williams Brick Co., F. Graham, Atlanta. HOMES. (Fabricated.)

Minter Homes Co., Greenville, S. C. HOOPS, BANDS, ETC. (Galvanized.)

McCalla Co., Harold, Philadelphia, Pa. Pittsburgh Steel Co., Pittsburgh, Pa.

HOSE. (Rubber.) Diamond Rubber Co., Akron, C. Goodrich Rubber Co., B. F., Akron, O. Goodyear Tire & Rubber Co., Akron, O. HOTELS.

Murphy's Hotel, Richmond, Va. Southern Hotel, The, Baltimore, Md. HOUSES.

Industrial.

Minter Homes Co., Greenville, S. C.

Multiple Pressed Steel.

Truscon Steel Co., Youngstown, O.

HULLS. (Steel, for Boats and Barg-American Bridge Co., New York, N. Y. Midland Barge Co., Midland, Pa.

HUMIDIFYING AND DRYING EQUIP-Grinnell Co., Providence, R. I.

Bourbon Cop. & Brass Wks., Cincinnati. Columbian Iron Wks., Chattanooga, Tenn. Ludlow Vaive Mfg. Co., Troy, N. T. Myers & Bros. Co., The F. E., Ashland, O, Wood & Co., R. D., Philadelphia, Pa.

HYDRAULIC GIANTS American Spiral Pipe Wks., Chicago, Ill. HYDRAULIC MACHINERY.

Caldwell & Co., E. B., Bradford, Pa. ICE CREAM FREEZERS, (Direct Brmion.) nental Machinery Co., Chicago, Ill.

ICE-MAKING MCHY, AND SUPPLIES. Arctic Ice Machine Co., Canton, O.
Baker Ice Machine Co., Canton, O.
Baker Ice Machine Co., Inc., Omaha,
Nebraska.
Continental Machinery Co., Chicago, III.
Frick Co., Waynesbore, Pa.
Southern Ice Machine Co., Chicago, III.
Fritumph Ice Mach. Co., The Cincinnati.
United Iron Works, Ransas City, Mo.
Viter Mca., Co., Inc., Henry, Louisville.
Vort Mfg. Co., York, Pa.

INCORPORATORS. (Companies.) Corporation Service Co., Wilmington, Dei. Delaware Reg. Trust Co., Wilmington

INDUSTRIAL, AGRICULTURAL AND City Advertising Dept., Jacksonville, Fla. Birmingnam Healty Co., Birmingnam Ass. Merchants & Manufacturers Assn., Louis ville, Ky.

ville, K. Raifreads.

Atlanta & West Point R. R. Atlanta Central of Georgia By. Co., Savannah, Ga. Model Land Company of the Flagler System, St. Augustine, Fl. Sabbard Air Line Rwy., Norfolk, Va. Texas & Pacific Railway, Dailas, Texas INJECTORS.

Jenkins Bros., New York, N. Y. Lunkenheimer Co., The, Cincinnati, Q Bandle Machinery Co., Cincinnati, Q INSERTS. (For Concrete Walls, Call Concrete Steel Co., New York, N. Y

INSTRUMENTS. (Electric Measuring.)
Weston Electrical Instr. Co., Newark, N.J.

INSULATING MATERIALS.
Continental Fibre Co., The, Newark, De,
General Electric Co., Schenectarly, N, Y
Johns-Manville, Inc., H. W., New York INTER-COMMUNICATING SYSTEMS. (Automatic.)
Automatic Electric Co., Chicago, Ill.

INVESTMENT SECURITIES INVESTMENT SECURITIES.

Allyn & Co., A. C., Chicago, Ill.
Caidwell & Co., Nashville, Tenn.
Bell & Co. & T., Toledo, O.
Campbell & Klassy, Toledo, O.
Campbell & Co., The, Chicago, Ill.
Halsey, Stuart & Co., Chicago, Ill.
Mercantile Trust & Deposit Co., Balto.
Mercer Co., G. A., Savannah, Ga.
Miller & Co., G. A., Atlanta, Ga.
Nureen & Co., John, Chicago, Ill.
Provident Savings Bank & Trust Co.,
Clincinnatt, O.
Rosenstiel Co., The Lewis S., Cincinnatt,
Silverman Co., W. H., Cincinnatu.
Silverman Co., W. L., Toledo, O.
Title Guarantee & Trust Co., Cincinnatt
Wise & Co., Harold G., Houston, Texas.

IRON

IROM.
Allegheny Steel Co., Pittsburgh, Pa.
Donnelly & Co., Phila., Pa.
Onnelly & Co., Phila., Pa.
Oliver Iron & Steel Co., Pittsburgh, Pa.
Ryerson & Son, Jos. T., St. Louis and
New York.
Tenn., C., I. & B. R. Co., Birmingian
United Railway Supply Co., Birmingian
United Co., Alan. Phila Pa.
Ingol. (For Culverts, etc.)
Amer. Rolling Mill Co., Middletown, O. IRRIGATING MACHINERY.

Factory.
Macklem Scaffolding Company, John J.,
Goshen, Ind.

Myers & Bros. Co., The F. E., Ashland,

LADLES.
Petroleum Iron Works Co., Sharon, P. For Open Hearth Steel Furnaces. LAMP GUARDS. (Wire.) Hubbell Inc., Harrey, Bridgeport, Cong.

LAMP REFLECTORS. Hubbell Inc., Harvey, Bridgeport, Conn. LAMPS.

Doubleday-Hill Electric Co., Wash., D. C. Linelits. Frink, Inc. 1. P., New York, N. Y LATCHES. (Fire Exit.) Vonnegut Hardware Co., Indianapolis.

LATH. (Metal.)
Edwards Mfg. Co., The Cincinnati. (Nat. Pressed Ricel Co., Massilion O Southern Steel Prod. Co., Bichmond, Va. Virginia Steel Supply Co., Bichmond, Va.

LATH MILL MACHINERY. Lane Mfg. Co., Montpelier, Vt.

LAWN FURNITURE. (Wire.)
Dufur & Co., Baltimore, Md.
Dufur, Baggott & Co., Baltimore, Md. LETTERHEADS.
Larew Printing Company, Knoxville, Tenn

LIGHTING FIXTURES. (Electric.) Reflectolyte Co., The, St. Louis, Me. LIGHT PLANTS.

LIGHTNING RODS.
Custodis Chimney Constr. Co., Alphons
New York, N. Y. LIMESTONE. (Building.)
Williams Brick Co., F. Graham, Atlanta.

LINE-SHAFT BEARINGS AND HANG Wood's Sons Co., T. B., Chambersburg, Pa LITHOGRAPHERS, ENGRAVERS. Security Bank Note Co., Phila., Pa. Smith Co., The, Oscar T., Baltimor Young & Seiden Ca., Baltimore, Md.

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you. LIVESTOCK SPECIALISTS.

LOADING AND UNLOADING MCHY. (Portable.)
Columbus Conveyor Co., Columbus, O. Dow Co., Inc., The, Louisville, Ky. Haiss Mfg. Co., Geo., New York.
Jeffrey Mfg. Co., Columbus, O. Portable Mchry. Co., Passaic, N. Y.

Dexter Metal Mfg. Co., Camden, N. J. Edwards Mfg. Co., The, Cincinnati, O. Medari Mfg. Co., Fred., St., Louis, Mo.

LOCOMOTIVES.

Whiteomb Co., Gee, D., Bochelle, Ill.

Gaseline, Industrial Equipment Co., Minster, O. Whitcomb Co., Geo, D., Bochelle, Ill.

Industrial.

Baber, Henry H., Norfolk, Va.,
Climax Mfg. Co., Corry, Pa.
Industrial Equipment Co., Minster, O.
Jeffrey Mfg. Co., Columbus, O.
Mid-Continent Eqt. & Mchry, Co., St. Louis, Mo. Porter Co., H. K., Pittsburgh, Pa. Southern Iron & Equip. Co., Atlanta, Ga.

Mining.

Jeffrey Mfg. Co., Columbus, O.

Hallway.

Jeorgia Car & Locomotive Co., Atlanta.

Perter Co., H. K., Pittsburgh, Pa.

Burwood, E. C., New York, N. Y.

Leuthern Iron & Eqt. Co., Atlanta.

Storage Battery.

LOGGING BLOCKS.

LEOMS AND WEAVING MCHY.
Crempton & Knowles Loom Works, Worcester. Mass.
Draper Corporation, Hopadale, Mass.

LUBRICANTS. LUBHICANTS.
Barne-Scrymser Co., New York, N. Y.
Cask's Sons. Inc., Adam, New York.
Texas Co., The, New York, N. Y.

Graphite, Dixon Crucible Co., Jos., Jersey City.

CUMBER.

Gabinet, McEwen Lumber Co., Norfolk, Va.

Ceilings, Fleering, Biding,
Bacon & Sons, A. S., Savannah, Ga.
Carolina Portland Cement Co., Charleston, B. C.
Central Coal & Coke Co., Kansas City,
Mo. Mo.

Great Southern Lbr. Co., Bogalusa, La.

Kirby-Bonner Lumber Co., Houston, Tex.

Kirby-Bonner Lumber Co., Houston, Tex.

Kirbyarlok Lumber Co., Bir
mingham, Ala.

Long-Bell Lumber Co., Kansas City, Mo.

Southern Cypress Manufacturers Asso.,

New Orleans, La.

Wier Lumber Co., R. W., Houston, Tex.

Cressided, N. New Orleans, La. American Crossote Wis., New Orleans, La. American Crossoting Co., Louisville, Ky. Crossoted Materials Co., Inc., New York, N. Y. Gulfport Crossoting Co., Gulfport, Miss. Long-Bell Lumber Co., Ganasa City, Mo. Pensscola Cressoting Co., Pensscola, Fla. Sarannah, Crossoting Co., Ponsscola, Fla. Sarannah, Crossoting Co., Inc., The, Port Wentworth, Savannah, Ga.

Cypress,
Black River Cypress Co., Gable, S. C.
Blake Lbr. Co., Thos. W., Houston, Tex.
Central Gulf Lumber Co., Inc., New
Orleans, Ls.

Gum.
Eastman-Gardiner Hardwood Co., Laurel,

Hardwood, Blake Lbr. Co., Thos. W., Houston, Tex. McEwen Lumber Co., Norfolk, Va.

Heavy Construction Pitch.
Pine, Etc.
& Sons, A. S., Savannah, Ga.
has Portland Cement Co., CharlesS. C. Contral Coal & Coke Co., Kansas City.
Central Guif Lumber Co., Inc., New
Orleans, La.
Exchange Sawmills Sales Co., Kansas
City Mo. Orleans, Echange City, Mo.

City, Mo
Great Southern Libr. Co., Bogalusa, La,
industrial Lumber Co., Elizabeth, La,
Kirby-Bonner Lumber Co., Hissabeth, La,
Kirby-Bonner Lumber Co., Birmingham, Ala,
Long-Bell Lumber Co., Kansas City, Mo.
Refibers Lumber Co., Norfolk, Va.
Bouthern Cypress Manufacturers Assn.,
New Orleans, La.
Sanley Lumber Co., H. F., Jackson, Miss,
Wier Lamber Co., E. F., Jackson, Tex.
Wier Lamber Co., E. W., Heusson, Tex.

Peplar, Eastman-Gardiner Hardwood Co., Laurel,

Rat. Presed Steel Co., Massilion, O. Sessange Steel Co., Toungstown, O.

Tupelo. Southern Cypress Manufacturers Assn., New Orleans, La.

White and Red Oak, Eastman-Gardiner Hardwood Co., Laurel.

White Pine. McEwen Lumber Co., Norfolk, Va.

Yallow Pine. American Lumber Co., Laurel, Miss. Bacon & Sons, A. S., Savannah, Ga. Blake Lbr. Co., Thos. W., Houston, Tex. Carolins Portland Cement Co., Charles-ton, S. C. Central Coal & Coke Co., Kansas City. Lirbatrick Lümber & Timber Co., Bir-mingham, Ala. 2002-Bell Lumber Co., Kansas City, Mo. 16cRas Lamber Co., Cornth, Miss. Southern Pine Assn., New Orleans, Id. Stanies Lumber Co., H. F., Jackson, Mass. Wier Lumber Co., R. W., Houston, Tex.

MACHINERY. (Special.) Bethlehem Steel Co., Bethlehem, Pa. Bilas Co., E. W., Brooklyn, N. Y. Universal Machine Co., Baltimore, Md.

MACHINERY AND SUPPLIES. (New and Second-band.)

MACHINERY AND SUPPLIES. (New and Second-hand.)

American Mchry, Eqt. Co., Charlotte, N. C. Beckerlay & Truske, Baitmore, Md. Brooks Supply Co., Beaumons, Fex. Carey Co., Thos. F., New York, N. Y. Castle & Wilson, Pitisburgh, Pa. Charleston Industrial Corp., Nitro, W. Y. Charleston Industrial Corp., Nitro, W. P. Davis, J. F., Chicago, III. Dempster Eqt. Co., Knoxville, Tunn. Begger, Becthe, Co., Knoxville, Tunn. Begger, Becthe, Co., Knoxville, Tunn. Hender, Becthe, Co., Knoxville, Tunn. Hender, Becthe, Co., Chicago, III. Bemphill & Co., J. L., Boboken, N. J. Hitner's Bons Co., Chicago, III. Hemphill & Co., J. L., Boboken, N. Y. Industrial Plants Corp., New York, N. Y. Khos, Bobert P., New York, N. Y. Khon, Phother Corp., New York, N. Y. King, Philip T., New York, N. Y. Milles Machinery Corp., Baitmore, Md. Marine Matal & Supply Ce., New York, Mayer, F., Chicago, III. Mehan Co., Andrew I., Phila, Pa. Miles Machinery Corp., Baitmore, Md. Mayer, P., Chicago, III. Mehan Co., Andrew I., Phila, Pa. Miles Machiner Corp., Baitmore, Md. Motter's Sons, Geo. F., York, Pa. Nashville Ind. Corp., Jacksonville, Tenn. O'Brien Mchy, Co., Phila, Pa. Prannsueller Sonz, Co., Chicago, III. Prannsueller Sonz, Co., Chicago

Tex. Zelnicker Sup. Co., W. A., St. Louis.

MACHINE TOOLS.

aston, Stanwood & Gamble Co., Cin-Mouston:
cinnati, O.
Niles-Bement-Pond Co., New York, N. Y.
Niles-Bement-Pond Co., New York, N. Y.
Seysron & Son, J. T., St. Louis & New
York.
Seeger Machine Tool Co., Atlanta, Ga.
Beeger Machinery Co., Jersey City, N. J.

MAGNETS. (Lifting.) Browning Co., Cleveland, Ohio. Electric Controller & Mfg. Co., Cleveland.

MAGNETIC SEPARATORS. Buchanan Co., Inc., C. G., New York, Paxson Co., J. W., Philadelphia, Pa.

MAIL CHUTES. Cutler Mail Chute Co., Rochester, N. T.

MARBLE, (Artificial for Cafeterias, etc.)
Carthage Marble & White Lime Co..
Carthage, Mo.

MARQUISE. ProBert Sheet Metal Co., Cincinnati.

METAL-CUTTING MACHINES. Atkins & Co., Inc., E. C., Indianapolis, Ind., Bacine Tool & Meb., Co., Bacine, Wis.

METAL WORKING MACHINERY. Bliss Co., E. W., Brooklyn, N. Y.

METERS. (Steam.) American District Steam Co., North Tonawanda, N. Y · Electrical Measuring. Weston Electrical Instr. Co., Newark, N.J.

MICROMETERS, CALIPERS, ETC.

WILL MACHINERY AND SUPPLIES. Bailey-Lebby Co., Charleston, S. C. Kries & Sons Co., Henry A., Balto., Md. Lombard Iron Wks. & Sup. Co., Augusta.

MILL WORK. (Lumber, All Kinds.) Bacon & Sons. A. S., Savannah, Gs. Cordele Sash, Door & Lumber Co., Cor-dele, Gs. Morgan Millwork Co., Baltimore, Md.

MINING MACHINERY.

Jeffrey Mfg. Co., Columbus, O. McLanaban-Stone Meh. Co., Hollidaysburg, Pa. Traylor Engr. & Mfg. Co., Allentown, Pa.

MIXERS.

Concrete.

Amer. Cement Meh. Co., Inc., Kackuk, Ia, Austin Machy. Corp., Chicago, Ill. Elystons Mig. Co., Cambridge Springs, Pa. Clyston Mig. Co., Cambridge Springs, Pa. Construction Machiner Co., Teo. Columbus, O. Koehring Co., Milwaukee, Wis. Republic Iron Works, Tecumsch, Mich. Service Equipment Jo., Philadelphia. Southern Steel Prod. Co., Blebmond, Vs.

Koehring Co., Milwaukee, Wis.

MOLDS. (Concrete Pipe). Universal Concrete Products Co., New Martinsville, W. Va.

MORTAR COLORS. Chattanooga Paint Co., Chattanooga.

MOTORS. (Electric.) Clark Jr. Electric Co., Jas. Louisville, Ky. Electric Controller & Mfg. Co., Cleveland, Ideal Electric & Mfg. Co., Mansheld, O. Triumph Electric Co., Cincinnati, O. Wagner Electric Corp., 8t.Louis, Mo. Westinghouse El. & Mfg. Co., E. Pitts.

MOTOR TRUCKS. General Motors Truck Co., Pentiae, Mich. Packard Motor Car Co., Detroit, Mich.

MOTOR-TRUCK TIRES. Kelly-Springfield Tire Co., New York.

MUSIC WIRE. American Steel & Wire Co., Chicago, Ill.

Wheeling Steel Prod. Co., Wheeling, W.

Wire All Kinds. Pittsburgh Steel Co., Pittsburgh, Pa. McCalla Co., Harold, Philadelphia, Pa.

NAILS AND SPIKES. Youngstown Sheet & Tube Co., Youngstown, O.

NAPHTHAS. (Paint.) Texhoma Oil & Refining Co., Wichita Falls, Tex.

NOZZLES. (Aerating, Sprinkler, etc.) Buffalo Forge Co., Buffalo, N. Y.

NUTS. (Cold Punched.) Oliver Iron & Steel Co., Pittsburgh, Pa.

OIL-BURNING SYSTEMS. Bethlehem Shipbuilding Corp., Bethlehem

OIL, FUEL AND BAS. Empire Refineries, Inc., Tulsa, Okia, Gulf Refining Co., Pittaburgh, Pa. Sapulpa Refining Co., Tulsa, Okia, Texas Co., The. New York, N. Y. Texhoma Oli & Refining Co., Wie Falls, Texas.

Warner Fettoleum Co., 8t. Louis, M. Warner Fettoleum Co., 8t. Louis, M. um Co., St. Louis, Mo.

OIL HEATING EQUIPMENT. Luchrs Co., The Daniel M., Cleveland, O.

Bauer Bros. Co., The, Springfield, Ob Brooks Supply Co., Beaumont, Texas Caldwell & Co., E. B., Bradford, Pa.

OILS. (Lubricating, etc.) Borns-Strymer Co. New York, N. Y. Cook's Sons. Inc., Adam, N. Y. Empire Referrers, Inc., Tuiss, Okla. Gulf Refining Co., Pituburgh, Pa., Robinson & Son Co. Wm. C., Baito., Md. Texa Co., The. New York, N. Texinoma Oll & Refining Co., Wichita Falls, Tex.

OIL-WELL MACHINERY. Brooks Supply Co., Beaumont, Tex. Cook. A. D., Lawrenceburg, Ind. Keystone Tank & Boiler Wks, Butler, Pa.

ORE-WASHING MACHINERY. MeLanahan-Stont Mch. Co., HollidaysORNAMENTAL IRON WORKS Cincinnati Mfg. Co., Cincinnati, O.
Dexter Metal Mfg. Co., Camden, N. J.
Dow Co., Inc., The Louisville, Ky.
Meyers Mfg. Co., Fred. J., Hamilton, O.
Roanoke Iron & Bridge Works, Boaneke,

Roanoke Iron & Bridge Werks, Hospasse, Va. Snead Architectural Iron Wka, Louisville, Stewart Iron Works Co., Inc., Cincinnati, Wilson Co., The, Greenville, S. C.

OXYGEN. Kentucky Oxygen-Hydrogen Co., Louisville,

PACKING. (Asbestos, Metallic, Rubber, Leather, etc.)

Diamond Rubber Co., Akron, O. Goodyear Tire & Bubber Co. Akron, O. Goodyear Rubber Co. B. F., Akron, O. Jenkins Bros. New York. Johns-Manville, Inc., H. W., New York. Power Specialty Co., New York, N. Y.

PAINT.

Metal Surfaces.

Dixon Crucible Co., Joa., Jersey City, N. J.

Robertson Co., H. H., Pittsburgh, Pa.

Mill White. (For Interiors.)
Du Pont de Nemours & Co., E. I., Wilmington, Del.
Sonneborn Sons, Inc., L., New York.

Preservative.

Berry Bres., Inc., Detroit, Mich. Cabot, Inc., Samuel, Boston, Mass. Du Pont de Nemours & Co., Inc., E. I., Wilmington, Del.

Roofing, Building, Etc. Barber Asphalt Co., Phila., Pa.
Berry Bros., Inc., Detroit, Mich.
Chattanoga Paint Co., Chattanoga.
Pittsburgh Plate Glass Co., Milwaukee,
Wis.

PANIC-EXIT DEVICES. Vonnegut Hardware Co., Indianapolis.

Matal. Folding, Rolling. Kinnear Mfg. Co., Columbus, Ohlo. Lupton's Sons Co., David, Phila., Pa. Swedish Venetian Blind Co., New York. Sectional, Felding, Rolling, Wood. Wilson Corporation, J. G., New York.

Audubon Wire Cloth Co., Audubon, N. J. Dow Co., Inc., The. Louisville, Ky. Meyers Mfg. Co., Fred J., Hamilton, O.

PATENT ATTORNEYS. Brown, Eugene C., Washington, D. C. Chandlee & Chandlee, Washington, D. C. Coleman, Watson E., Washington, D. C. Evans & Co., Victor J., Washington, D. C. Lacey & Lacey, Washington, D. C.

PATTERNS. (Wood and Metal.) American Pattern Works Co., York, Pa. Dixie Brass & Fdy. Co., Birmingham.

PAVEMENT BREAKERS. Buckeye Traction Ditcher Co., Findlay, O.

PAVING BLOCKS. (Wood.) Creesoted Materials Co., Inc., New Orleans Southern Creesoting Co., Ltd., Slidell, La., Southern Wood Preserving Co., Atlanta.

PAVING MIXERS. (Concrete Amer. Cement Mch. Co., Inc., Keokuk, Ia. Chain Belt Co., Milwaukse, Wis. Jaeger Machine Co., The, Columbus, O.

PAVING PLANTS. (Asphalt.) Cummer & Son Co., F. D., Cleveland, O., Kinney Mfg. Co., Boston, Mass. Warren Bros. Co., Boston, Mass.

PERFORATED METAL. PERFORATED METAL.
Caldwell & Son Co., H. W., Chicago, III.
Erdie Perforating Co., Rochester, N. Y.
Harrington & King Perf. Co., Chicago,
Hendrick Mfg. Co., Carbondele, Pa.
Manhattan Perforated Metal Co., New York
Mundt & Sons, Charles, Jersey City, N. J.

PETROLEUM REFINERS. Empire Refineries, Inc., Tulsa, Okla.
Guif Refining Co., Pittsburgh, Pa.
Robinson & Son Ca., Wm. C., Balto, Md.
Sapulpa Refining Co., Tulsa, Okla.
Texas Co., Tuls., New York, N. Y.
Warner Petroleum Co., St. Louis, Mo.

PHOSPHATE MACHINERY. American Process Co., New York, N. Y. Balley-Lebby Co., Charleston, S. C. Charleston Dr. Dock & Mch. Co., Charles-ton, S. C. Dock & Mch. Co., Charles-ton, S. C. McLanahan-Stone Mch. Co., Hallidays-burg, Fa.

N

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you,

PHOTOGRAPHING APPARATUS. (Let-ters, Legal Papers, etc.) PIPE UNIONS AND JOINTS. Dart Mig. Co., E. M., Provider Photostat Corp., Bochester, N. Y.

Alabama Co., The, Birmingham, Ala. Bethlehem Steel Co., Bethlehem, Pa. Brier Hill Steel Co., Youngstown, Ch. Hammond-Byrd Iron Co., Birmingham, Pittsburgh Steel Co., Pittsburgh, Pa. Republic Iron & Steel Co., Youngstown, Oren, C. I. & R. B. Co., Birmingham.

PILE DRIVERS. (Locomotive.) Bucyrus Co., South Milwaukee, Wis. National Hoisting Eng. Co., Harrison, N. J. Northwest Engr. Co., Chicago, Ill.

PILING.

Creosoted. American Creosoted Wks., New Orleans. American Creosoting Co., Louisville, Ky. Creosoted Materials Co., Inc., New Orleans. Eppinger & Russell Co., New York, N. Y. Pensacola Creosoting Co., Pensacola, Plasswannah, Co., Inc., The Port Sawannah Co., Inc., The Port Creosoting Co., Ltd., Slidell, La. Southern Creosoting Co., Ltd., Slidell, La.

Cypress. Black River Cypress Co., Gables, S. C.

PILLOW BLOCKS

Goldens' Fdy. & Mch. Co., Columbus, Ga. Medart Co., The, St. Louis, Mo. Wood's Sons Co., T. B., Chambersburg, Pa.

Grant Supply Co., Chas. J., Philadelphia, National Tune Co., Pittsburgh, Pa. Youngstown Sheet & Tube Co., Youngs-town, O. Wheeling Steel Prod. Co., Wassing, W. Va.

Cast Iron.

American C. I. Pipe Co., Birmingham. Centre¹ Foundry Co., The, New York, Glamorgan Pipe & Fdy Co., Lynchburg, Centre Supura Va., Va., Service & Fdy Co., Birmingnam. Nat'l Ceast Iron Pipe & Foundry Co., Burlington, N. J. Wood & Co., B. D., Philadelphia, Pa.

Frick Co., Waynesboro, Pa. York Mfg. Co., York, Pa.

Cuivert.

Armeo Culvert & Flume Mfgrs. Assn., Chicago, Ill. Canton Culvert & Silo Co., Canton. O.

Lancaster Iron Works, Luc., Lancaster, Pa. Iron and Steel.

Ryerson & Son, Jos. T., St. Louis and New York,

Riveted.

Abendroth & Root Mfg. Co., Newburgh, N Y. im Iron Works, Co., Sharon, Pa.

Second-Hand.

Brooks Supply Co., Beaumont. Tex. Central Pipe & Supply Co., Charleston, W. Va. Grant Supply Co., Chas. J. Philadelphia, Crimin. Frank, Philadelphia, Pa. Marine Metal & Supply Co., New York. Pipe & Contractor's Sup. Co., New York.

Spiral Riveted.

Abendroth & Boot Mfg. Co., Newburgh,
N. Y. American Spiral Pipe Wks., Chicago, Ill.

Steel. National Tube Co., Pittsburgh, Pa. Republic Iron & Steel Co., Youngstown seling Steel Prod. Co., Wheeling, W. Youngstown Sheet & Tube Co., Youngstown, O.

Michigan Pipe Co., Bay City, Mich. Standard Wood Pipe Co., Williamsport, Pa.
Wyckoff & Son Co., A., Elmira, N. Y.

Wrought Iron. Youngstown Sheet & Tube Co., Youngs-town, O.

PIPE BENDS AND HEADERS.

Grinnell Co., Providence, B. I.

PIPE FITTINGS. American C. I. Pipe Co., Birmingham. Crane Co., Chicago, Ili. Grimth, Frank, Philadolphia, Pa. Grimthell Co., Providence, R. Kries & Sons Co., Henry A., Balto., M. Lunkenbeimer Co., The. Cinimati, O. National C. I. Pipe Co., Birmingham. Dart Mfg. Co., E. M., Providence, B. I.

PIPING CONTRACTORS. Crawford & Slaten, Atlanta. Ga.

PITCH. Barrett Co., New York, N. Y.

PLATES.

Allegheny Steel Co.. Pittaburgh. Pa.
Bethienem Shipbuilding Corp.. Bethiehem.
Bethienem Steel Co.. Bethiehem.
Bethienem Steel Co.. Bethiehem.
Bethienem Steel Co.. Sethiehem Fa.
Cincinnati Iron & Steel Co., Cincinnati.
Donnelly & Co.. Phila., Pa.
Miorais Steel & Ordinance Co.. Phila.
Republic Iron & Steel Co., Younestown, O.
Biter-Conley Co.. Pittaburgh, Pa.
Ayerson & Son, Jos. T., St. Louis and
New York.
Wood, Iron & Steel Co., Alan, Phila.

Steel Tunnel Liner. Truscon Steel Co., Youngstown, Ohia.

PLAYGROUND APPARATUS. Medart Mfg. Co., Fred., St. Louis, Mo.

PNEUMATIC TOOLS. Independent Preumatic Tool Co., Chicago,

Cresated.

American Creosote Wks., New Grissian American Creosoting Co., Louisville, Ky. Creosoted Materials Co., Inc., New Oricans Savannah Creosoting Co., Inc., The Port Wentworth, Savannah, Ga. Southern Wood Preserving Co., Atlanta.

Cypress. Black River Cypress Co., Gable, S. C.

TUBULAR STEEL National Tube Co., Pittsburgh, Pa.

POLISHING MCHY. (Wheels, Blocks.)

Motal

Maryland Metal Building Co., Baltimore.

Wooden. Minter Homes Corp., Huntington, W. Va.

POSTS. (Cast Iron.) (Bailway and Highway.) U. S. Cast Iron Pipe & Foundry Co., Burlington, N. J.

POWDER. (Cleaning.) India Alkali Works, Boston, Mass.

Grinnell Co., Providence, R. I.

POWER TRANSMISSION MCHY

POWER TRANSMISSIOP MCHY.

American Pullsy Co., Charlestor S. C.,

Saliey-Lebby Co., Charlestor S. C.,

Caldwell & Son Co., H. W., Chicago, Ill.

Caldwell & Son Co., H. W., Chicago, Ill.

Caldwell & Son Co., H. W., Chicago, Ill.

Caldwell Co., Inc., W. Z., Louisville, Ey.,

Cressori, Morris Co., Philadelphia, Pa.

Davis Foundry & Meh. Wha., Rome, Ga.

Jones & Laughlin Steel Co., Pittsburgh,

Link-Bert Co., Philadelphia, Pa.

Medart Co., The, St., Louis, Mo.

Schoffeld's Int.

Weller Mig. Co., Chicago, Ill.

Wood's Sons Co., T. B., Chambersburg, Pa.

PRESERVATIVE. (Wood.) Barrett Co., The, New York, N. T.

PRESSED STEEL PARTS.
Sharon Pressed Steel Co., Sharon, Pa.

Baling, Cottonseed Oil, Hydraulic and Pow Bauer Bros. Co., The, Springfield, O. Cardwell Machine Co., Bichmond, Va. Continental Gin Co., Birmingham, Ala-Dunning & Boschert Press Co. Syracuse. Bipley Foy. & Mach. Co., Ripley, O.

Metal Stamping. Bliss Co., E. W., Brooklyn, N. Y.

Sewer Pipe & Tile. Tanlin-Blee-Clerkin Co., Akron, O.

PRINTERS. (Book, Catalog, Job, etc.) Cussons, May & Co., Inc., Richmond, Va. Fleet-McGinley Co., Baltimore, Md. Larew Printing Company, Knoxville, Teon. Smith Ca. The Over T., Baltimore, Md. Young & Selden Co., Baltimore, Md.

Fricties Clutch.
Caldwell & Son Co., H. W., Chicago, III.
Caldwell Co., Inc., W. E., Louisville, Ky.
Cresson-Morris Co., Philadelphia, Ps.
Medart Co., The, St. Louis, Mo.
Wood's Sons Co., T. B., Chambersburg,

American Pulley Co., Philadelphia, Pa. Medart Co., The, St. Louis, Mo.

Wood Spilt. Caldwell & Son Co., H. W., Chicage, Ill. Medart Co., The, St. Louis, Mo. Reeves Pulley Co., Columbus, Ind.

PULLEYS, SHAFTING AND HANGERS Publicys, SHAFTING AND HANGERS.
American Pulley Co., The, Phila., Pa.
Caidwell & Son Co., H. W.; Chicago, Ill.
Cresson-Morris Co., Philadelphia, Pa.
Goldens' Fdy, & Mch. Co., Columbus, Ga.
Jones & Laughlin Steel Co., Pittaburgh.
Mediart Co., The, St. Louis, Mo.
Wood's Sons Co., T. B., Chambersburg,
Pa.

PULVERIZERS.

Gruender Pat. Crusher & Pul. Co., St. Louis. McLanahan-Stone Mch. Co., Hollidaysburg, Pa.

Raymond Bros. Impact Pulv. Co., Chicago.

Traylor Engr. & Mfg. Co., Allentown, Pa.

Williams Patent Crusher & Pulverizer
Co., Chicago.

PUMPING MACHINERY.

Cameron Steam Pump Works, A. S., New York, N. Y.

Carter Co., Balph B., New York, N. Y.

Cook, A. D., Lawrenceburg, Ind.

Domestic Engine & Pump Co., Shippensburg, Pa.

Earle Gear & Machine Co., Phila., Pa.

Emerson Pump & Vaive Co., Inc., Alexandria, Va.

Ingersoil-Rand Co., New York, N. Y.

Keystone Driller Co., Beaver Falls, Pa.

Layne & Bowler Co., Memphis, Tenn.

McGowan Co., John H. Cincinnati, O.

Moffat Mehy. Mig. Co., Carlotte, N. C.

Myers & Bro. Co., The F. E., Ashland, C.

National Transit Pump & Meh. Co., Oil

Lity, P. Even. & Comp. Co., Easter, Pa.

National Transit Pump & Meh. Co., Oil City, Pa.
City, Pa.
Penna, Pump & Comp. Co., Easton, Pa.
Platt Iron Works, Dayton, O.
Pulsometer Steam Pump Co., New York,
Reilly Mfg. Co., J. J., Louisville, Ky.
Ridder-Ericsson Engine Co., New York,
Ridder-Ericsson Engine Co., New York,
Sydnor Pump & Well Co., Richmond.
Traylor Engr. & Mfg. Co., Allentown, Pa.
Va. Méhy, & Well Co., Richmond., Va.
Wood & Co., R. D., Philadelphila, P.
Wood & Co., R. D., Philadelphila, P.
Worthington Fump & Mehy, Copp., N. Y. C.

PUMPING OUTFITS. (Diaphragm.) Carter Co., Balph B., New York, N. Y. Construction Machinery Co., Waterloo, Ia. Domestic Engine & Pump Co., Shippensburg, Pa.

Domestic Engine & Pump Co., Shippens burg, Pa., Fairbanks-Morse & Co., Chicago, Ill.

Manistee Iron Works Co., Manistee, Mich.

Air Lift. Ingersoll-Band Co., New York, N. Y. Sullivan Machinery Co., Chicago, Ill.

Asphalt and Road Oil. Kinney Mfg. Co., Boston, Mass. Northern Fire Apparatus Co., Minneapells.

Beller Feed.

Allie-Chaimers Mfg. Co., Milwaukee, Wis. Buffalo Steam Pump Co., Buffalo, N. Y. De Laval Steam Turbine Co., Trenton. Earle Gear & Machine Co., Philla., Pa. Ingersoll-Band Co., New York, N. Y. Moffat Mehy, Mfg. Co., Charlotte, N. C. Myers & Bro. Co., The F. E., Ashland, O. Rellly Mfg. Co., J. J., Louisville, Ky. Worthington Pump & Mehy. Corp., N. Y.

Centrifugal. Allis-Chaimers Mfg. Co., Milwaukee, Wis. Buffalo Steam Pump Co., Buffalo, N. Y. Carter Co., Balph B., New York, N. Y. Charleston Industrial Corp., Nitro, W. Va. De Laval Steam Turbine Co., Trenton, N. J.

De Laval Steam Turbine Co., Trenton, J. Domestic Engine & Pump Co., Bhippensburg, Pr. & Machine Co., Phila., Pa. Erie Fump & Engine Wks., Medina, N. Y. Ingersoll-Band Co., New York, N. Y. Ingersoll-Band Co., New York, N. T. Keystone Driller Co., Beaver Falls, Pa. Manistee Iron Works Co., Manistee Mich, Morris Mch. Was, Baldwinsville, N. Y. Nashville Ind. Corp., Jacksonville, Twm. Penna, Pump & Comp. Co., Easton, Pa. Platt Iron Works, Dayton, O., Fallston, Ph. Platt Iron Works, Dayton, O. Wew York, Wood & Co., Ph. Philadelphils, Pa. Worthington Fump & Mcdy, Corp., N. Y. Worthington Fump & Mcdy, Corp., N. Y.

Carter Co., Balph B., New York, N. Y.,
Cook, A. D., Lawrenceburg, Ind.
Domestic Engine & Pump Co., Shippensburg, Pa.
Ingernoll-Band Co., Inc., New York, N. Y.,
Layne & Bowler Co., Memphis, Ten.,
Keystone Driller Co., Beauer Fails, Pa.,
Rider-Ericason Engine Co., New York,
United Iron Works, Kansas City, Mo.

United Iron Worss, Ransseller, Dredging, Wha. Medina, N. Y. Wood & Co., E. D., Philadelphia, Pa. Worthington Pump & Meh. Corp., N. Y. Firs.

Earle Gear & Meh. Co., Phila., Pa. Northern Fire Apparatus Co., Minneapolis, Constant of the Measurian.

Gaseline Measuring.

Wayne Tank & Pump Co., Fort Wayne,
Ind.

Worthington Funn & Sichy, Cosp., N. J.

Power.

Domestic Engine & Pump Co., Bhippensburg, Pa.

Dunning & Boschert Press Co., SyracusMcGowan Co., Join H., Chechmail, O.

National Transil Fump & Machine Co.,

Northern Fire Apparatus Co., Minneapolis,

Worthington Pump & Mchy, Corp., N. T.

Retary, Water, Chemicals, Ets. Northern Pire Apparatus Co., Minneapolis, Northern Fire Apparatus Co., Minneapolis, Buffalo Steam Pump Co., Buffalo, N. Y. Cook, A. D., Lawrencehurz, Ind. Emerson Pump & Valve Co., Inc., Alexandria, Y. G., New York, N. Y. McGowan Co., John H., Cincinnath, O. National Transit Pump & Meh. Co., oll City, Pa. Penna, Pump & Comp. Co., Easton, Pa. Platt Iron Works, Dayton, O. Pulsometer Steam Pump Co., Cincinnatl, O. Reilly Mfg. Co., J. J., Louisville, Ky. Sydnor Pump & Well Co., Bickmond, Va. Worthington Pump & Mchy, Corp., N. Y. Teleker Pump & Mchy, Corp., N. Y. Teleker Pump & Mchy, Corp., N. Y.

Triplex Power

Domestic Engine & Pump Co., Shippenshurg, Pa.
National Transit Pump & Machine Co.,
Oil City, Pa.
Platt Iron Works, Dayton, O.
Traylor Engr. & Mig. Co., Allentown, Pa.

Turbine.
Layne & Bowler Co., Memphis, Tenn.
Platt Iron Works, Dayton, O.

Vacuum.

Allis-Chaimers Mfg. Co., Milwaukee.
Ingersoil-Rand Co., New York, N. Y.
Manistee Iron Works Co., Manistee Mich.
Penn. Pump & Comp. Co., Evision, Pa.
Stillivan Mehry. Co., Chicago, M.
Worthington Pump & Mehry. Corp., N. Y.

Water-Works.

Goulds Mfg. Co., Seneca Falls, N. Y.
McGowan Co., Jno. H., Clucinnatt, O.
Manistee Iron Works Co., Manistee, Mich.
Worthington Pump & Mchy. Corp., N. Y.

PUNCHING AND SHEARING MCHY. Blise Co., E. W., Brooklyn, N. Y. Buffalo Force Co., Buffalo, N. Y. Covington Meh. Co., Inc., Covingto

RAILINGS AND GRILLS, IRON AND BRASS. (Banks and Offices.) Dow Co., Inc., The, Loutwille, Ky. Purfur & Co., Baltimore, Md. Dufur, Inagett & Co., Baltimore, Md. Ludlow-Saylor Wire Co., St. Louis, Mo. Nevers Mfs. Co., Fred. J., Hamilton, O. Wilson Co., The, Greenville, S. C.

RAILROADS. (Offering Industrial, Agri-cultural and Commercial Opportunities.) cultural and Commercial Opportunities.)
Atlanta & West Point R. R., Atlanta.
Central of Georgia Rwy. Co., Savannal.
Model Land Company of the Flagler Systems. St. Augustine. Fla
Seaboard Air Line Rwy., Norfolk, Va.
Texas & Pacific Railway, Dallias, Texas.

RAILROAD CARS. (Box, Flat, Gondola.) Houston Railway Car Co., Houston, Tex. Wilson & Co., E. H., Philadelphia, Pa.

RAILROAD DITCHERS. Marion Steam Shovel Co., Marion, O.

RAILROAD EQUIPMENT AND SUP-RAILHOAD EQUIPMENT AND SUP-PLIES. (New and Second-hand.) Amer. Frog & Switch Co., Hamilton, O. Baber, Henry H., Morfolk, Va. Bailey-Lebby Co., Charleston, S. C. Benjamin Eqt. Co., Harry, St. Louis, Mo. Birmingham Bail & Looc, Co., Birming-ham, Ala. Briddell Co., Inc., W. C., Baltimore, Md. Carey Co., Thes. F., New York, N. Y. Charleston Industrial Corp., Nitro, W. Va. Charleston Industrial Corp., Nitro, W. Va. Chiechandi G. S. C., Chicago, Ill. Footer Co., Hone, R. C., Chicago, Ill. Footer Co., H. M., Baltimore, Md.

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

describe Co., Schepectady, N. T., Soorgia Car & Loco, Co., Atlanta, Ga. Harris Bros. Co., Chicago, Ili. Guotani Hallway Car Co., Houston, Tex. Hyman-Michaels Co., Chicago, Ili. Children, Chicago, Ili. Children, Child

RAILROAD FROGS AND SWITCHES. AALROAD FROGS AND SWITCHES
Amer. Frog & Switch Co., Hamilton, O.
Bethiehem Steel Co., Bethiehem, Ps.
Briddell Co., Inc., W. C., Baltimore, Md.
Cincinnati Frog & Switch Co., Cincinnati,
Frank, M. K., Pittoburgh, Pa.
Elihy Frog & Switch Co., Brimingham.
National Steel Bail Co., St. Louis, Mo.
Rabinson & Orr. Pittsburgh, Pa.
Wed, P. W., New Orleans, La.
Weir Frog Co., Cincinnati, O.

Wair Frog Schell, Steel.)

Baber, Henry H., Norfolk, Va.

Baber, Henry H., Norfolk, Va.

Beschibten St. Co., Harry, St. Louis, Mo,

Beschibten Steel Co., Bethiehem, Pa.,

Briddell Co., Inc., W. C., Battimore, Md.

Carey Co., Thos. F., New York, N. Y.

Cohen & Son, Louis, Wilkes-Barre, Pa.,

Foster Co., H. M., Baltimore, Md.

Frank, M. K., Pitzsburgh, Pa.

Hyman-Michaela Co., Chicago, III.

Levis & Co., Henry, Philadelphila, Pa.

Lindhelmar, S. W., Chicago, III.

Levis & Co., Henry, Philadelphila, Pa.

Lindhelmar, S. W., Chicago, III.

Levis & Co., Henry, Philadelphila, Pa.

Lindhelmar, S. W., Chicago, III.

Mills Contractors Eqt. Co., Chattanooga,

Mills Contractors Eqt. Co., Chattanooga,

Mashville Ind. Corp., Jacksonville, Tenn.

National Steel Rail Co., St. Louis, Mo,

Potitstown Steel Co., Douglassvilla, Pa.

Roblinson & Orr, Pittsburgh, Pa.

Roblinson & C., New York, N. T.

Einger Iron & Steel Co., Huntingham,

United Railway Supply Co., Birmingham,

United Railway Supply Co., Birmingham,

United Railway Supply Co., Birmingham,

Va.

Lebelcker Supply Co., W. A., St., Louis, RAILS. (Steel.)

Zeinicker Supply Co., W. A., St. Louis. RAILWAYS. (Industrial.)

Briddell Co., Inc., W. C., Baltimore, Md. Cincinnati Frog & Switch Co., Cincinnati

REFLECTORS. (Lamp.) Frink, Inc., I. P., New York, N. Y. Hubbell Inc., Harvey, Bridgeport, Conn. REFRACTORIES.

Anniston Refractories Co., Oxford, Ala. Ohio Refractories Co., The, Ironton, O.

REFRIGERATING MCHY, AND APPA-

RATUS.
Article Ice Machine Co., Canton. O.
Baker Ice Machine Co., Omaha, Nebr.
Continental Machinery Co., Chicago, Ill.
Kehce. Robert P., New York. N. Y.
Southern Ice Machine Co., Charlotte, N.C.
Triumph Ice Machine Co., Chicinnatl., O.
Yiller Mig. Co., Milwalkes, Wis.
Yort Mch. Co., Inc., Henry, Louisville.
York Mig. Co., Xork, Pa.

BEINFORCING WIRE FABRIC. (Con-Concrete Steel Co., New York, N. Y. National Steel Fabric Co., Pittsburgh,

RINGS. (Piston.)

Universal Machine Co., Baltimore, Md. RIVER AND HARBOR IMPROVE-MENTS. (Dredging, Docks, Wharves,

Atlantic Gulf & Pacific Co., New York. Foundation Co., The, New York, N. Y. RIVETS.

Hammond Byrd Iron Co., Birmingham. Hubbel, Inc., Harvey, Bridgeport, Conn. Waterbury Mfg. Co., Waterbury, Conn.

ROAD AND STREET MACHINERY. Barber Asphalt Co., Phila., Pa., Buffalo-Springfield Roller Co., Spring-field, O., Spring-field, O., Spring-Syers Machine Company, The, Bavenna, O. Otto Company, The, Havenna, Otto Company, The, Havenna, Otto Company, Tene, Barows Co., (Ball Engine Stem Shovel Co., (Ball Engine Gallon Ion Works & Mfg. Co., Gallon, O. Good Roads Mchry, Co., Atlanta, Ga. Hampton Reads Equip, Co., Norfolk, Ya. J. T. Tractor Co., Cleveland, O., Keystone Driller Co., Easerer Falls, Pa. Kinney Mfg. Co., Boston, Mass. Macon Concrete Roller Co., Macon, Ga. United Iron Works, Kansas City, Mo. Universal Road Mohy, Co., Kingston, N. T. Wilson Tank & Culvert Co., San Antonio, Tex.

ROAD AND STREET MATERIAL Amphalt Association, New York, N. Y. Barber Asphalt Co., Phila, Fa. Barrett Co., New York, N. Y. Birmingham Siag Co., Birmingham, Ala. Bonley & Co., W. W., Roanoke, Va. Good Boats Mchry. Co., Atlants. Ga. Kentischy Rock Asphalt Co., Louisville, Petersburg Sand & Gravel Corp., Petersburg. Ye. Portland Cement Assn., Chicage, Tennessee Copper Co., Coppernill, Tenn. Texas Co., The. New York, N. Y. Warren Bros. Co., Boston, Mass.

ROAD BINDERS. Barber Asphalt Co., Phila., Pa. Barrett Co., New York. N. Y. Texas Co., The, New York, N. Y.

ROAD FINISHING MACHINES.
Heltzel Steel Form & Iron Co., Warren,

ROAD GRADERS AND SCRAPERS. ROAD GRADERS AND SUMAPERIS.
Austin Mg. Co. Chicago, III.
Austin-Western Road Mchy, Co., Chicago,
Erie Steam Shorel Co., (Ball Engine
Co.), Erie, Pa.
Galion Iron Works & Mg. Co., Galion, O.
Good Roads Mchry, Co., Atlanta, Ga.

BOAD OHERS Austin-Western Boad Mchy, Co., Chicago,

ROAD OILS AND PRESERVATIVES. Barber Asphalt Co., Phils., Pa.
Barrett Co., New York, N. Y.
Du Pont de Nemours & Co., Inc., M. I.,
Wilmington, Del.
Gulf Refining Co., Pittsburgh, Pa.
Texas Co., The, New York, N. Y.

ROAD-DILING MACHINERY. Austin-Western Road Mchy, Co., Chicago, Kinney Mfg. Co., Boston, Mass.

Austin-Western Boad Mchy. Co., Chicago. Gallon Iron Works & Mfg. Co., Gallon, O.

ROAD REINFORGEMENT. (Welded Concrete Steel Co., New York, N. Y. National Steel Fabric Co., Pittaburgh,

ROAD ROLLERS.

Austin Mg. Co., Chicago, III.
Buffalo-Springfield Roller Co., Springfield, Ohio.
Galion Iron Works & Mfg. Co., Galion, O.
Good Boads Mchry. Co., Atlanta, Ga. Steam and Gasoline.

Austin-Western Road Mchy. Co., Chicago.
Barber Asphalt Co., Phila., Pa.
Burfalo-Springfeld Roller Co., Springfield. Ohio.
Eric Machine Shops. Eric, Pa.
Good Roads Mchry. Co., Atlanta, Ga.
Service Equipment Co., Philadelphia.
Universal Road Mchy. Co., Kingston, N. Y.

ROAD SCARIFIERS. Austin Mfg. Co., Chicago, Ill.
Buffalo-Springfield Boller Co., Springfield O.

Galion Iron Works & Mfg. Co., Galion, O. Good Roads Mchry. Co., Atlanta, Ga. ROAD AND STREET MACHINERY.

J. T. Tractor Co., Cleveland, Ohio.

ROLLERS. (for Concrete Boad.)
Macon Concrete Boller Co., Macon Ga

Kentucky Rock Asphalt Co., Louisville. ROOFING.

Ashestes Protected Metal. Bobertson Co., H. H., Pittsburgh, Pa. Coment Tile.

imer. Cement Tile Mfg. Co., Pitts., Pa.

Mets: Shingles. Cortright Metal Roofing Co., Phila., Pa. Gordon Metal Co., Richmond, Va. Southern Sheet & Tin Plate Co., Ash-land, Ky.

Ready Prepared. (Felt, Tar, Asbestos, Asphalt.) Aspestos, Asphail.)

Drag.

Drag.

Drag.

Austin-Western Road Michy. Co., Chicago.

Barrett Co., New York, N. Y.

Gordon Metal Co., Bichmond, Va.

Johns-Mansville Inc., H. W., New York.

Bouthern Sheet & Tin Plate Co., Ashland, Ky.

SCRAP IRON AND CO., Chicago.

State. tructural Slate Co., Pen Argys, Pa. endor Slate Co., Inc., Easton, Pa.

Tile. (Cement, Channell, Flat and Glass.) Amer. Cement Tile Mfg. Co., Pittsburgh. Tin.

Taylor Co., N. & G., Phila., Pa.

ROOFING AND SIDING.

Amer. Bolling Mill Co. Milddletown. O. Amer. Bolling Mill Co. Milddletown. O. Amer. Bose. Tin Plate Co. Firsburgh. Berger Mg. Co., Canon. Ohio. Brier Hill Steel Co. Toungstown. O. Cortright Metal Rooting Co. Phila. Pa. Edwards Mg. Co. The Cincinnati. O. Moreschi-Rewards Corr. Co. Command.

Republic Iron & Steel Co., Youngstown, O. Robertson Co., H. H., Pittsburgn. Wheeling Steel Prod. Co., Wheeling, W. Youngstown Sheet & Tube Co., The, Youngstown, O.

Asbestes Protected Metal, Bobertson Co., H. H., Pittsburgh, Pa.

ROOFING TILES.

Amer. Cement Tile Mfg. Co., Pittsburgh. Ludowiei-Celadon Co., Chicago, Ill Ocones Br. & Tile Co., Milledgeville, Ga., Southern Mosaic Tile Co., Atlanta, Ga.

Braided Cotton. Samson Cordage Works, Boston, Broderick & Bascom Rope Co., St. Louis.
Plymouth Cordage Co., New York, N. Y.

Wire, Transmission, Heisting, Haulage.
American Steel & Wire Co., Chicago, III. Broderick & Bascom Rape Co., St. Louis. Leschen & Sons Rope Co., A., St. Louis. Roebling's Sons Co., John A., Trenton, N. Whittock Cordage Co., New York, N. Y.

ROPE DRIVES Caldwell & Son Co., H. W., Chicago, Ill, Cresson-Morris Co., Philadelphia, Pa., Jones & Laughin Steel Co., Pitzburgh, Medart Co., The, St. Louis, Mo. Weller Mfg. Co., Chicago, Ill. Woods Sone Co., T. B., Chambersburg, Pa.

RUBBER GOODS. Goodrich Rubber Co., B. F., Akron, O. Goodyear Tire & Bubber Co. Akron, O.

RULES. (Steel.) Starrett Co., L. S., Athol, Mass.

S. A. E. FITTINGS. Mueller Metals Co., Port Huron, Mich.

Arundel Corp., The, Baltimore, Md. Friend & Co., Inc., Petersburg, Va. Kirkpatrick, Sand & Cemest Co., Bir-mingham, Ala. Petersburg, Va.

SAND DRYERS. American Process Co., New York, N. Y. Ripley Foundry & Mchy. Co., Ripley, O.

SAP STAIN PREVENTIVE. Church & Dwight Co., New York, N. T.

SASH OPERATING DEVICES. Drouve Co., G., Bridgerort, Conn.

Atkins & Co., Inc., E. C., Indianapolis Ind.
Hask.
Atkins & Co., Inc., E. C., Indianapolis Ind.
Sterrett Co., L. S., Athol, Mass.
Pewer Hack.
Bacine Tool & Meb., Co., Bacine, Wis.

SAWMILL MACHINERY. SAWMILL MACHINERY.
American Saw Mill Mchry. Co., Hackettstown, N. J.
Bailey-Lebby Co., Charleston, B. C.
Lane Mfg. Co., Montpelier, Vt.
Parks Bail Bearing Machine Co.,
Cincinnati, Ohio.
Schofield's Iron Works, Macon, Ga.

SAW MILLS, (Portable.) Corinth Mehy. Co., Corinth, Miss. Lane Mfg. Co. Montpelier. Wt.

SCAFFOLDING. (Contractors, Painters, Macklem Scaffolding Company, John J., Goshen, Ind.

Fairbanks, Morse & Co., Chicago, Ill.

SCRAPERS.

SCRAP IRON AND STEEL. Briddell Co., Inc., W. C., Baltimore. Hyman-Michaels Co., Chicago, Ill. Pottstown Steel Co., Douglassville, Pa.

SCREENS. (Fly. Window and Door.) Cincinnati Fly Screen Co., Cincinnati, O. Ludlow-Saylor Wire Co., St. Louis, Mo. New Jersey Wire Cloth Co., Trenton, N. J.

SCREENS. (Oil, Water and Gas Well.) McDroy & Co., J. H., Houston, Texas.

SCREENS. (Band, Gravel, Stone, Coal, Ole, st., of the Co., Audubon, N., J. Chain Belt Co., Miliwaukes, Wis. Erdle Perforating Co., Rochester, N. T. Hendrick Mr. Co. Carbondale Pa Link-Belt Co., Philadelphia, Pa. Ludlow-Saylor Wire Co., St. Louis, Me. McLanahan-Stone Mch. Co., Hollidays-burg, Pa. Mundt & Sona, Charles, Jorsey City, N. J. New Jersey Wire Cloth Co., Trenton, N. J. Traylor Eng. & Mig. Co., Allentown, Pa. Wickwire-Spencer Steel Corp., New York,

SCREENINGS. (For Concrete and Boad American Limestone Co., Knoxville, Tenn.

SCREW-MACHINE PRODUCTS. Progressive Mfg. Co., Torrington, Conn. Waterbury Mfg. Co., Waterbury, Conn.

SCREWS.

Mathine.
Hubbell, Inc., Harvey, Bridgeport, Conn.
Progressive Mfg. Co., Torrington, Conn.
waterbury Mfg. Co., Waterbury, Conn.

SELF-RELEASING FIRE-EXIT DE-Vonnegut Hardware Co., Indianapolis.

SEPARATORS.

Baymond Bros. Impact Pulv. Co., Chicago. Magnetic,
Dings Magnetic Separator Co., Milwaukee, Wia.

SEPTIC TANKS. Chattanoga Sewer Pipe Works, Chatta-noga, Tenn. Septic Tank Co., Wilmington, N. C.

SEWAGE-DISPOSAL APPARATUS. Pacific Flush-Tank Co., New York, N. Y. Septic Tank Co., Wilmington, N. C.

SEWER JOINT COMPOUNDS. Pacific Flush-Tank Co., New York, N. T.

SEWER PIPE. (Vitrified.)

Bannon Pipe Co., Louisville. Ky.
Cambria Clay Products Co.. Blackfork. O.
Cannelton Sewer Pipe Co., Cannelton End.
Chattanooga Sewer Pipe Works, Chattanooga. Tenn.
Oconce Br. & Tile Co., Milledgeville, Ga.
Cweniboro Sewer Pipe Co., Owenibaro, Ky.
Stevens Bros. & Co., Stevens Pottery, Gs.

SEWER PIPE MACHINERY. Taplin-Rice-Clerkin Co., Akron, O.

SHAFTING.

Ryerson & Son, Jos. T., St. Louis and New York. Union Drawn Steel Co., Beaver Falls, Pa.

Cold Rolled Steel American Steel & Wire Co., Chicago, Ill.

Strand & Co., N. A., Chicago, Ill.

Polished Steel.

Jones & Laughlin Steel Co., Pittsburgh.
Medart Co., The, St. Louis, Mo.
Republic Iron & Steel Co., Youngstown.
Union Drawn Steel Co., Beaver Falls, Pa.

SHAFTING MATERIAL. (Tubular.) National Tube Co., Pittsburgh, Pa.

SHARPENING STONES. Carborundum Co., Niagara Falls, N. Y.

SHEET BRASS AND COPPER. Chase Metal Works, Waterbury, Conn

SHEET METAL WORK.

Burkett Sheet Metal Works, Hattlesburg,
Miss.
Notical Blow Pipe & Mfg. Co., New
Creans, La.
Shreveport Blow Pipe & Sheet Iron Works,
Ltd., Shreveport, La.

SHEET METAL WORKING MCHY. Bliss Co., E. W., Brooklyn, N. Y.

SHEET STEEL AND IRON

SHEET STEEL AND IRON.

Amer. Rolling Mill. Co., Middletown. O Amer. Sheet & Tin Plate Co., Pittsburgh. Bethlehem Steel Co., Co., Bethlehem. Pa. Brier Bill Steel Co., To., Bethlehem. Pa. Brier Bill Steel Co., Toungstown. O. Cincinnat Iron & Steel Co., Toungstown. O. Ryerson & Son, Jos. T., St. Louis and New York.

Tenn. C. I. & R. R. Co., Birmingham. Wheeling Steel Prod. Co., Wenglag. W. Vi...

Vol. Wood, Iron & Steel Co., Ain, Phila., Pa. Youngstown Sheet & Tube Co., The, Youngstown, O.

Nov

T

Li

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you.

Asbestos Protected.

SHEET STEEL PILING. Lindheimer, B. W., Chicago, III.

SHELVING. (Steel.) (Vault, Stere, etc.) Dexter Metal Mfg. Co., Camden, N. J. Lupton's Sons Co., David, Phila., Pa. Medart Mfg. Co., Fred., St. Louis, Mo.

BHINGLES

Cedar.

Kirkpatrick Lumber & Timber Co., Bir-mingham, Ala.

Metal.

Berger Mfg. Co., The, Canton. O.
Canton Art Metal Co., The, Canton, O.
Cortclight Metal Roofing Co., Phila., Pa.
Gordon Metal Co., Richmond, Va.
Southern Sheet & Tin Plate Co., Ashland, Ky.

SHINGLE STAINS labot, Inc., Samuel, Boston, Mass.

SKIPBIIII DINO Sun Shipbuilding Co., Chester, Pa.

SHOVELS. (Steam, Gas, Electric and

Power.)

Power.)

Browning Co., Cleveland, Ohio.

Bucyrus Co., South Milwaukee, Wis.

Brie Steam Shovel Co., (Ball Engine
Co.), Eric. Pa.

Marion Steam Shovel Co., Marion, O.

Northwest Engr. Co., Chicago, III.

Oagood Co., The, Marion, O.

SHUTTERS

Steel.
Swedish Venetian Blind Co., New York.

Steel and Wood Bi-folding.

Frink, Inc., I. P., New York, N. Y.

Woolford Wood Tank Mfg. Co., G., Phila,

SKYLIGHTS.

Bdwards Mfg. Co., The. Cincinnati, O. Hires-Turner Glass Co., Washington. ProBert Sheet Metal Co., Cincinnati, Bobertson Co., H. H., Pittsburgh, Pa.

Puttyless.

Drouve Co., G., Bridgeport, Conn.
Schoedinger, F. O., Columbus, O.

BLAG.

Concrete.

Birmingham Slag Co., Birmingham Ala.
Tennessee Copper Co., Copperbill, Tenn.

Furnace.

Birmingham Slag Co., Birmingham, Ala,
Tennessee Copper Co., Copperhill, Tenn.

SLATE PRODUCTS.

Structural Slate Co., Pen Argyl, Pa. Vendor Slate Co., Inc., Raston, Pa.

SLUICE GATES AND APPLIANCES. Coldwell-Wilcox Co., Newburgh, N. T.

SMOKESTACKS. (Iron and Steel.)
Chattanooga Boiler & Tank Co., Chattanooga. Tenn.
Chicago Bridge & Iron Works. Chicago.
Dowingtown Iron Wks., Dowingtown. Pa.
Heltsel Steel Form & Iron Co., Warren,
Ohio.

Ohio.

Lancaster Iron Works, Co., Lancaster, Pa.

Lancaster Iron Works, Co., Lancaster, Pa.

Lancaster, Pa.

Son, Co., Augusta.

Pittaburgh Des Mines & Sup. Co., Augusta.

Pittaburgh Des Mines & Sup. Co., Gurgha.

Schofield's Iron Works, Macco., Gr.

Barpaville Bolier Was, Co., Sharpaville, Pa.

U. S. Cast Iron Pipe & Fdy. Co., Burlington, N. J.

Virginia Bridge & Iron Co., Roanoke, Va.

Waish & Weidner Boller Co., Chattanoogs,

Youngstown Boller & Wank Co., Youngstown, O.

Church & Dwight Co., New York, N. Y.

Railread, Ship.
Bethlehem Steel Co., Bethlehem, Pa.
Bepublic Iron & Steel Co., Youngstown, O. Track, Atlanta Bolt & Steel Prod. Co., Atlanta

SPRINKLER TANK. (Steel.) Chicago Bridge & Iron Works, Chicago

SPRINKLERS.

Automatic Firs.

Beverley Heating Co., R. C., Bichmond. ford & Slaten, Atlanta, Ga.

Street.

SPRINGS. (Mchy., Rwy., Spiral, Steel.) Baymond Mfg. Co., Ltd., Corry, Pa.

STACKS, (Radial Brick.) Custodis Chimney Constr. Co., Alphons, New York, N. V.

STAINS. (Shingle, Woodwork, etc.) Cabot, Inc., Samuel, Boston, Mass.

STAIR TREADS, (Non-slipping.) Concrete Steel Co., New York, N. Y.

STAMPS. (Brass, Rubber.)
Dorman Co., J. F. W., Baltimore, Md.

STAMOPIPES.
Chattanoga Boiler & Tank Co., Chattanoga, Tenn.
Chicago Bridge & Iron Works. Chicago.
Harrier Boiler Works, Montgomery, Ala.
Pittsburgh-Des Mohes St. Co., Pittsburgh.
Walsh & Weldoer Boiler Co., Chattanooga.

STARTING SWITCHES. ectric Controller & Mfg. Co., Cleveland.

STATIONERS. (Envelopes, Letter and Billheads, etc.) Cussons, May & Co., Inc., Richmond, V. Smith Co., The Oscar T., Baltimore, Mo. Young & Selden Co., Baltimore, Md.

STEAMSHIP LINES. (Coastwise.)
Merchants & Miners Transportation Co.,
Baltimore, Md.

STEAM METERS.

American District Steam Co., North Tonawanda, N. Y.

STEAM SHOVELS.

Browning Co., Cleveland, Ohio, Bucyros Co., South Milwaukee, Wis. Erie Steam Shovel Co., (bail Engine Co.), Erie, Pa. Kevatone Driller Co., Beaver Falls, Pa. Marion Steam Shovel Co., Marlon, O. Osgood Co., The, Marion, O.

STEAM SPECIALTIES.

STEAM SPECIALTIES.
American District Steam Co., North
Tonawanda, N. Y.
Crane Co., Chicago, III.
Johlins Brox., New York, N. Y.
Lunkenheimer Co., The Cincinnati, O.
Powell Co., The William, Cincinnati, O.

STEAM TRAPS Jenkins Bros., New York, N. Y. Johns-Manville Inc., H. W., New York,

STEEL.

Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittaburch, Pa.
Dietrich Broa, Baltimore, Md.
Donnelly & Co., Phila., Pa.
Jones & Laughin Steel Co., Pittaburgh,
Lukens Steel Co., Coatesville, Pa.
Midvale Steel & Ordnance Co., Phila., Pa.
Oliver Iron & Steel Co., Pittaburgh, Pa.
Ryerson & Son, Jos. T., St. Louis and
Tenn. C. I. & R. R. Co., Birmingham,
Uniton Drawn Steel Co., Beaver Falls, Pa.
United Railway Supply Co., Birmingham,
Wheeling Steel Prod. Co., Wheeling, W.
Va.

Wheeling Steel Prou. Co., Alan, Phila., Pa. Va., Wood, Iron & Steel Co., Alan, Phila., Pa. Youngstown Sheet & Tube Co., The, Youngstown, O.

Electric Furnace, Bethlehem Steel Co., Bethlehem, Pa.

Strip.
Nat. Pressed Steel Co., Massillon, O.

Tool, (High Speed.) Bethiebem Steel Co., Bethiebem Pa. Gordon Metal Co., Richmond, Va. Midvale Steel & Ordanos Co., Phila., Pa. Ryerson & Son, Jos. T., St. Louis and New York. Union Drawn Steel Co., Beaver Palls. Pa.

Union Drawn Steel Co., Beaver Falls, Pa.

STEEL BUILDINGS.

ers and Builders. Designers and Builders.
Americas Bridge Co. New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Blaw-Knor Co., Pittsburgh, Pa.
Champion Bridge Co., Wilmington, O.
Champion Bridge Co., Wilmington, O.
Bichleay Jr. Co., John, Pittsburgh, Pa.
Grania Iron Works Co., Birningham, Ala.
Inter' Steel & Iron Co., Examyllis, Ind.
McClintic-Marshall Co., Pittsburgh, Pa.
Pittsburgh-Des Mornes St. Co., Pittsburgh, Pa.
Pittsburgh-Des Mornes St. Co., Pittsburgh, Richmond Stras, Steel Co., Richmond, Va.
Scaife & Sons Co., Wm. B., Pittsburgh.

Snead Architectural Iron Wks., Louisville Virginia Bridge & Iron Co., Boanoke, Va Walah & Weigner Boiler Co., Chattanooga

Ready-made Sectional, Maryland Metal Building Co., Baltimore, Widmer Engineering Co., St. Louis, Mo.

STEEL CASTINGS.

Crucible Steel Casting Co., Landsdowns, Ps.
Midvale Steel & Ordnance Co. Phila.
Ohlo Steel Fdry. Co., The, Springfield, O.

STEEL LUMBER.

Nat. Pressed Steel Co., Massillon, O. Truscon Steel Co., Toungstown, O.

STEEL PLATE WORK.

STEEL PLATE WORK.
Blaw-Knox Co., Pittsburgh, Pa.
Chattanooga Boiler & Tank Co., Chattanooga Bridge & Iron Works, Chicago Lancaster Iron Works, Co., Chatonoster, Pa.
Petroleun Iron Wes. Co., Sharon, Pa.
Phoenix Iron Co., Philadelphia, Pa.
Biter-Conjey Co., Pittsburgh, Pa.
Biter-Conjey Co., Pittsburgh, Pa.
Southern Metal Co., Lake Charles, La.
Sauthern Metal Co., Lake Charles, La.
Starpsville Boiler Wis Co., Sharpsville, Pa
Treadwell Constr. Co., Midland, Pa.
Walsh & Weidner Boiler Co., Chattanooga,
Youngstown Boiler & Tank Co., Youngstown

STEEL SHEET PILING.

Jones & Laughlin Steel Co., Pittsburgh. Zelnicker Supply Co., Walter A., St. Louis

Dorman Co., J. F. W., Baltimore, Md.

STENCIL-CUTTING MACHINES. Regnas & Co., J. R., Atlanta, Ga.

Petroleum Iron Wks. Co., Sharon, Pa

STOCK CERTIFICATES, BONDS AND SEALS. Dorman Co., J. F. W., Baltimore, Md.

STOKERS.

Hand. Vogt Bros. Mfg. Co., Louisville, Ky.

Babcock & Wilcox Co., New York, N.Y. McClave-Brooks Co., Scranton, Pa. Westinghouse El. & Mfg. Co., E. Pitts.

STONE, (Building.)

Carthage Marble & White Lime Co., Carthage, Mo. Wiliams Brick Co., F. Graham, Atlanta.

STONE AND GRAVEL PLANT EQUIP. Weller Mfg. Co., Chicago, Ill.

STORE FRONTS.

Complete.
Inter'l Steel & Iron Co., Evansville, Ind.

Glass. Hires-Turner Glass Co., Washington, D.C.

Metal. Zouri Drawn Metals Co., Chicago Hts. Ill.

STRAINERS. (Oil, Water and Gas Well.) McEvoy & Co., J. H., Houston, Texas.

STREET SWEEPERS. Austin Mfg. Co., Chicago, Ill.

STRIPS, (Steel.) Nat Pressed Steel Co., Massillon, O.

STRUCTURAL STEEL AND IRON.

STRUCTURAL STEEL AND IRON.
American Eridge Co., New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittaburgh, Pa.
Champion Bridge Co., Wilmington, O.
Chesapsate Iron Works, Baltimore, Md.
Cincinnati Iron & Steel Co., Chactanoga.
Dietrical Tron.
Couverse Bridge & Steel Co., Chactanoga.
Dietrical Tron.
Louisrille, Br.
Louisrille, E.
Lou

Reilly Mfg. Co., J. J., Louisville, Ky. Republic Iron & Steel Co., Youngstown, O. Richmond Struc. Steel Co., Richmond, Va. Roanoxe Iron & Bridge Worss, Roanoxe.

Ya.

Ryerion & Son, Jos. T., St. Louis and New York.

Smith Gas Engr. Co., Dayton, O. Stead Architectural Iron Wiss. Louisville.

Stead Architectural Iron Wiss. Louisville.

Virginis Bridge. & Iron Co., Boronica Ma.

Virginis Bridge. & Iron Co., Boronica Ma.

Walsh & Weidner Boiler Co., Chattanoga.

Wilson Co., The. Greenville. S. C.

SULPHUR.

Freeport Sulphur Co., Freeport, Texas. Union Sulphur Co., The, New Yors.

SULPHURIC ACID.

Davison Chemical Co., Baltimore, Md. Du Pont de Nemours & Co., Inc., E. I. Wilmington, Del.

SUPER-HEATERS, (Steam.) Babcock & Wilcox Co., New York, N. Y.

SURVEYING INSTRUMENTS. Weber Co., F., Philadelphia, Pa.

SWINGING ENGINES.

Dake Engine Co., Grand Haven, Mina

SWITCHBOARDS, SWITCHES, ETC. Electric Controller & Mfg. Co., The Cleveland, O., Geoval Electric Co., Schenectady, N. 7 Randle Machinery Co., Clucinnaid, O., Westinghouse El. & Mfg. Co., E. Pitta

SWITCHSTANDS.

Weir Frog Co., Cincinnati, O.

TANKS.

Air Compressor.
Air-Tight Steel Tank Co., Pittsburgh.

Lead Lined. Hauser-Stander Tank Co., Cincinnati.

iron and Steel.

Air-Tight Steel Tank Co., Pittsburgh,
American Bridge Co., New York, N. T.
American Bridge Co., New York, N. T.
Blaw-Knox Co., Pittsburgh, Pa,
Galdwell Co., Inc., W. R., Louisrille, Ky
Chattanooga Boller & Tank Co., Chattanooga, Tan.
Chicago Bridge & Iron Works, Chicago,
Cole Mg. Co., B. D., Newnan, Ga.
Downingtown Iron Waks., Downingtown.
Pa.

Downingtown Iren Was., Downingtown. Pa.

Hamburg Boller Was., Hamburg, Berks County, Pa.

Hartley Boller Works, Montgomery, Als.

Heltzel Steel Form & Iron Co., Warren.

Ohlo.

Mr. Co. Carbondale Pa.

Beitsei Steel Form & Iron Co., Warren.
Ohio.
Hendrick Mfg. Co., Carbondale, Fa.
Ingalis Iron Works Co., Birmingham, Ale
Lancaster Tron Work. & Boller Wile., Futler, Fa.
Lancaster Tron Work. & Gun. Co., Augusta.
Petroleum Iron Works Co., Sharon, F.
Pittaburgh-Des Moines St. Co., Pittaburgh Biter-Conley Co., Pittaburgh. Pa.
Scaife & Soms Co., Wm. B., Pittaburgh.
Schofeld's Iron Works. Macon. Ga.
Scharpwille Boiler Wis. Co., Sharpwille. Ps.
Smith Gas Farr. Co., Jacon. Charles Is.
Treadwell Constr. Co., Midland, Fa.
Virginia Bridge & Iron Co., Roanoke, Va.
Walsh & Wediner Bolist Co., Chianoga.
Westinghouse Traction Brake Co., Williamod.
Fa. Westinghouse Traction Brake Co., Wil-merding, Pa. Youngstown Boiler & Tank Co., Youngs-town, O.

Pickline.

er-Stander Tank Co., Cincinnati, O

Beamless Steel. National Tube Co., Pittsburgh, P.

Universal Concrete Products Co., New Martinsville, W. Va.

Dowingtown Iros Wha. Dowingtown, I a. Keystone Tank & Boller Was., Butler, Pa. Nashville Ind. Corp., Jacksonville, Tesa. Petroleum Iron Works Co., Bharpsville Beller Was. Co., Sharpsville, Southern Management Co., Sharpsville, Sgotthaw. Storage, Oll, etc.

Bouthern Metal Co., Lake Charles, L4.
Wayne Tank & Pump Co., Ft. Wayne, Ind.
Toungstown Boiler & Tank Co., Youngstown, O.

Caldwell Ca., Inc., W. E., Louisville, Ey Continental Pipe Mfg. Co., Seattle, Wash Davité, Sco., G. M., Palatka, Fis. Hauser-Stander Tank Co., Cincinusti, G. Virginia Mchy. & Well Co., Rick sood. Woolford Wood Tauk Mfg. Co., G. Phili

922

ime

Ì

TANK CARS. Liquids Despatch Line, Chicago, Ill.

TAPES. (Measuring.) Starrett Co., L. S., Athol, Mass.

TAX SPECIALISTS. bertson, Furman & Murphy, New York,

TELEPHONE SERVICE. American Telephone & Telegraph Co

TELEPHONE SYSTEMS. (Automatic Interior and Local.)
Automatic Electric Co., Chicago, Ill.

TERRA-COTTA. (Ornamental.) Atlanta Terra-Cotta Co., Atlanta, Ga.

THRESHERS Cardwell Machine Co., Richmond, Va.

Tile.

Drais.
Chattanooga Sewer Pipe Works, Chattanooga, Tenn.
Resport Brick Corp., Kingsport, Tenn.
Response Br. & Tile Co., Milledgeville, Ga.

Floor, Wall, Mantel, Etc., mer. Enam. Brick & Tile Co., N. Y. cod Brick Co., B. Mimin, Atlanta, Ga. conce Br. & Tile Co., Milledgeville, Ga., sathern Mosaic Tile Co., Atlanta, Ga.

Amer. Cement Tile Mfg. Co., Pittsburgh,

Segment Blecks, Chattanooga Sewer Pipe Wks., Chatta-nooga, Tenn.

Structural.

Kingsport Brick Corp., Kingsport, Tenn.
Oconee Br. & Tile Co., Milledgeville, Ga.

Amer. Coment Tile Mfg. Co., Pittsburgh,

Amer. Cement Tile Mfg. Co., Pittsburgh. Ludowici-Celadon Co., Chicago, Ill.

Greosoted.
American Creonote Wks., New Orleans

TIME RECORDERS

Chicsgo Watchman's Clock Wks., Chicago. Eco Clock Co., Boston, Mass. Newman Clock Co., New York, N. Y.

TIN AND TERNE PLATES Amer. Sheet & Tin Plate Co., Pittsburgh. Bethlehem Steel Co., Bethlehem, Pa., Taylor Co., N. & G., Phila., Pa. Wheeling Steel Prod. Co., Wheeling, W.

TIN PLATE POLISHING MACHINERY. Anderson Fdry. & Mch. Co., Anderson,

Motor Truck, Kelly-Springfield Tire Co., New York.

TOBACCO MACHINERY. Cardwell Machine Co., Richmond, Va. Ripley Foundry & Mach, Co., Ripley, O.

Electric Co., Jas., Louisville, Ky. Independent Pneumatic Tool Co., Chicago.

Machinists,
Pratt & Whitney Co., New York.
Western Tool & Mfg. Co., Springfield, O.

Mechanical. Starrett Co., L. S., Athol, Mass.

Passumatie.
Independent Presumatic Tool Co., Chicago, Ingersoll-Rand Co., New York, N. Y.

TOOLHOLDERS. Western Tool & Mfg. Co., Springfield, O.

Electric Transmission.

American Bridge Co., New York, N. Y.
Blaw-Knox Co., Pittsburgh, Pa.

Biter-Conley Co., Pittsburgh, Pa.

Radie. Eiter-Conley Co., Pittsburgh, Pa. Steel and Weed.
Chattanooga Boiler & Tank Co., Chattamooga, Tenn.
Cole Mfg. Co., R. D., Newman, Ga.
Pitisburgh-Des Moines St. Co., Pitisb
Waim & Weidner Boiler Co., Chattan

TRACK SPIKES. Atlanta Bolt & Steel Prod. Co., Atlanta,

J. T. Tractor Co., Cleveland, O. J. T. Tractor Co., Cleveland, O. TRAILERS. (Industrial.) Electric Wheel Co., Quincy, Ill. Sharon Pressed Steel Co., Sharon, Pa.

TRAMWAY. TRAHWAY.

Overhead.
Richards-Wilcox Mfg. Co., St. Louis, Mo.
Wire Rope.
American Steel & Wire Co., Chicago.
Broderick & Bascom Rope Co., St. Louis.
Caldwell & Son Co. H. W., Chicago, Ill.
Leschen & Sons Rope Co., A., St. Louis.

TRANSFORMERS Crocker-Wheeler Co., Ampere, N. J. General Electric Co., Schenectady, N. Y. Westinghouse El. & Mfg. Co., E. Pitts. TRANSMISSION BEARINGS AND

Standard Pressed Steel Co., Jenkintown, Pa. Weod's Sons Co., T. B., Chambersburg, Pa.

TRENCH MACHINERY. Austin Mchry. Corp., Chicago, III. Buckeye Traction Ditcher Co., Findlay, O. Eric Steam Shovel Co., (Ball Engine Co.), Eric, Pa.

TRIM. (Metal.) Dahlstrom Metallic Door Co., James town, N. Y.

TROLLEYS. (Overhead Tramway.) New Jersey Fdy. & Mach. Co., New York, Reading Chain & Block Corp., Reading, Pa

TRUCKS.

Dryklin,
Moore Dry Klin Co., Jacksonville, Fla
Electric for Sheps, Mills, etc.
Elwell-Parker Elec. Co., Cleveland, O.

Elwell-Parker Elec. Co., Cleveland, O Sharon Pressed Steel Co., Sharon, Pa

Meter,
General Motors Truck Co., Pontiac, Mich.
Packard Motor Car Co., Detroit, Mich. Platform, Freight, Mill, Factory, Etc. Edwards Mfg. Co., The, Cincinnati, O. TRUST COMPANIES.

Maryland Trust Co., Baltimore, Mc. TUBE WELL STRAINERS. Cook, A. D., Lawrencepurg, Ind. TUBING.

Brass and Copper.
Chase Metal Works, Waterbury, Conn.
Mueller Metals Co., Port Huron, Mich.

Boiler Tube Co., of America, Pittaburgh, Goodyear Tire & Rubber Co., Akron, O. Wheeling Steel Prod. Co., Wheeling, W. Ya.

Seamless Steel, National Tube Co., Pittsburgh, Pa. TURBINES.

Hydraulle.
Davis Foundry & Mch. Wks., Rome, Ga.
Leffel & Co., James, Springfield, O.
Smith Co., S. Morgan, York, Pa.

custua Co., S. Morgan, Tork, Pa.

Steam.
Allis-Chalmers Mfg. Co., Milwauksee, Wis.
De Laval Steam Turbine Co., Trenton,
N. J.
General Electric Co., Schenectady, N. Y.
Westinghouse El. & Mfg. Co., E. Pitts-burgh.

TURNTABLES.

American Bridge Co., New York, N. Y. Virginia Bridge & Iron Co., Roanoke, Va. Automatic. (Portable for Trucks.) Champion Engr. Co., The, Kenton, O. TWINE.

Plymouth Cordage Co., North Plymouth, Mass. Whitlock Cordage Co., New York, N. Y. UNIONS

Mfg. Co., E. M., Providence, B. f.

UNLOADERS.
Burch Plow Works Co., The, Crestline, O. Car.
Heltrel Steel Form & Iron Co., Warren,

Ohio.

VALVES.
Bethlehem Shipbuilding Corp., Bethlehem, Bourbon Copper & Brass Works Co., Cincinnati, O., Columbia Iron Wits., Chattanoogs, Tenn. Crane Co., Chicago, Ili., Pa., Jenkins Bros., New York, N. Y., Ludkenbeimer Co., The, Cincinnati, O., Powell Co., The William, Cincinnati, O., Ryerson & Son, Jot. T., St. Louis and New York Co., Inc., Henry, Louisville, Westinghouse Traction Brake Co., Wilwestinghouse Traction Brake Co., Wilwestinghouse Traction Brake Co., Wilwood Drill Works, Paterson, N. J. York Mg. Co., York, P. Chreimesti, O., Acid. Serot.

Acid-groof.
Lunkenheimer Co., The, Cincinnati, O. Gas Preducing.
Morgan Construction Co., Worcester, Mass

Gas Reversing. Morgan Construction Co., Worcester, Mass. Ludlow Valve Mfg. Co., Truy, N T.

VARIABLE-SPEED TRANSMISSION. Beeves Pulley Co., Columbus, Ind. VARNISH.

Berry Brothers, Inc., Detroit, Mich Pittsburgh Plate Glass Co., Milwat Wis,

VENEER CUTTING MACHINES. Titus, E. E., Petersburg, Va. VENTILATING APPARATUS

Engineers' and Contractors',
Allen Engr. & Mfg. Co., Savannah, Ga.
Buckeye Blower Co., Columbus, O.
Buffalo, Forge Co., Buffalo, N. Y.

VENTILATORS, (Roof.) Edwards Mfg. Co., The, Cincinnati, C Lenderking, Philip H., Baltimore, Mc Robertson Co., H. H., Pittsburgh, Pa. Schoedinger, F. O., Celumbus, O.

VIRES. Western Tool & Mfg. Co., Springfield, O.

VOLTMETERS. Weston Electrical Instr. Co., Newark, N.J.

WAGON LOADERS.

Austin Machinery Corp., Chicago, Ill. Bonney Supply Co., Inc., Rochester, N. Y. Haiss Mfg. Co., Gee., New York, N. Y. Link-Beit Co., Philadelphia, Pa. Portable Mchry. Co., Passaie, N. J.

WASHING MACHINERY.

Ore and Phosphate. Bailey-Lebby Co., Charleston, S. C.

Sand and Gravel. Bonney Supply Co., Inc., Bochester, N. Y. Link-Belt Co., Philadelphia, Pa. WATCHMAN'S PORTABLE CLOCKS. Chicago Watchman's Clock Wks., Chicago, Eco Clock Co., Boston, Mass. Newman Clock Co., New York, N. Y.

WATERPROOFING, (For Brick, Con-Waster Builders Co., The, Cleveland, O. Sonneborn Sons, Inc., L., New York. Texas Co., The, New York, N. Y.

WATER PURIFICATION.

New York Continental Jewell Filtration Co., The, Nutley, N. J. Roberts Filter Mfg. Co., Darby, Pa. Scaife & Sons Co., Wm. B., Pittsburgh,

WATER-SOFTENING APPARATUS.

WAIEH-SUFTEMING AFFARAIUS.
(Purifying Mater Schener Co., Phila.
International Filter Co., Chicago, III.
New York Continental Jewell Filtration
Co., The, Nutley, N.
Scalife & Sons Co., Wm. B., Pittsburgh.
Wayne Tank & Pump Co., Ft. Wayne, Ind.

WATER SUPPLY INSTALLATIONS. Layne & Bowler Co., Memphis, Tenn

WATER WELL SCREENS. McEvoy & Co., J. H., Houston, Texas.

WATER-WORKS SUPPLIES AND AP-FLIANCES.

A Pipe Co., Birmingham, Bourbon Copper & Brass Works Co., ClaClandell, Wilcox Co., Newburgh, N. Y.,
Cotumbian Iron Works, Chattanoga, Tenn,
Cook, A. D., Lawrenceburg, Ind.,
County, Va.
Hamburg, Boller Works, Hamburg, Berks
County, Pa.
Michigan Pipe Co., Bay City, Mich.,
Standard Word Pipe Co., Williamsport,
Pa.

Pa. Cast Iron Pipe & Fdry. Co., Burlington, N. J.
Wood & Co., B. D., Philadelphia, Pa.

WATTMETERS. Weston Electrical Instr. Co., Newark, N.J.

WELDING.

Blaw-Knox Co., Pittsburgh, Pa.

WELDING APPARATUS. Electric Are.
General Electric Co., Schenectady, N. Y. Oxy-Acetylens,
Kentucky Oxygen-Hydrogen Co., Louisville, Ky.

WELDING ROD. Mueller Metals Co., Port Huron, Mich. WELL CONTRACTORS. (Oil, Artesian, etc.)

Cook, A. D., Lawrenceburg, Ind.
Hughes Specialty Well Drilling Co.,
Charleston, S. C.
Sydnor Pump & Well Co., Bichmond, Va.
Va. Mchy. & Well Co., Richmond, Va.

WELL STRAINERS. (Oil, Water & Gas.) McEvoy & Co., J. H., Houston, Taxas. WELL SUPPLIES. (Oil, Water & Gas.) McEvoy & Co., J. H., Houston, Texas.

WELL TOOLS AND SUPPLIES. Cook, A. D., Lawrenceburg, Ind. Keystone Driller Co., Beaver Falls, Pa

In writing advertisers please mention Manufacturers Record. Whenever you need any product not advertised, please tell us. We will find it for you. WHARFBOATS. (Steel.)
Midland Barge Co., Midland, Pa.

> WHEELS AND AXLES. Electric Wheel Co., Quincy, Ill.

WHEEL PRESSES. Caldwell & Co., E. R., Bradford, Pa.

Hadfield-Penfield Steel Co., Bucyrus, O.

WINDLASSES, Hadfield-Penfield Steel Co., Bucyrus, O

WINDOW FRAMES AND SASH. Lupton's Sons Co., David, Phila., Fa. Truscon Steel Co., Youngstown, O.

WINDOW GLASS. American Window Glass Co., Pittsburgh

WINDOW GUARDS.

Audubon Wire Cloth Co., Audubon, N. J. Dexter Metal Mfg. Co., Camden, N. J. Dow Co., Inc., The, Louisville Ey. Meyers Mfg. Co., Fred. J., Hamilton, O. Stewart Iron Whs. Co., Inc., Cincinnat.

All Kinds.

Ryerson & Son, Jos. T., St. Louis and
New York.

Barbed Wire, Etc.
American Steel & Wire Co., Chicago.
Youngstown Sheet & Tube Co., Youngstown, O.

Brass and Copper. Chase Metal Works, Waterbury, Conn. Mueller Metals Co., Port Huron, Mich.

Fence.
Amer. Fence Constr. Co., New York.
Anchor Post Iron Works, New York, N. Y.

Flat and Round. Roebling's Sons Co., John A., Trenton, N. J.

Gaivanized and Anneated.

Telephone, Telegraph.

American Steel & Wire Co., Chicago, Ill.

Weiding. Roebling's Sons Co., John A., Trenton,

WIRE CLOTH, (Iron, Steel, Brass, etc. Wiffe GLUIN. (1705). Gleid, Stass, e.c., Audubon Wire Cloth Co., Audubon, N. J. Caldwell & Son Co., H. W., Chicago, Harrington & King Perforating Co., Chicago, Ill. Ludlow-Saylor Wire Co., Bt. Louis, Me. New Jersey Wire Coth Co., Trenton, N. J. Wickwire-Spencer Steel Corp., New York,

WIRE GOODS.

Amer. Fence Constr. Co., New York. Cyclone Fence Co., Waukegan, Ill. Dufur & Co., Baltimore, Md. Dufur, Baggott & Co., Baltimore, Md. New Jersey Wire Fence Co., Trenten, N. J.

WIRE NETTING. Ludlow-Saylor Wire Co., St. Louis, Me New Jersey Wire Cloth Co., Trenton, N. J Wickwire-Spencer Steel Corp., New York

WIRE ROPE Broderick & Bascom Rope Co., St. Louis, Leschen & Sons Rope Co., A., Bs. Louis, Williamsport Wire Rope Co., Williams-port, Fa.

WIRE ROPE CLIPS. American Steel & Wire Co., Chicago, Ill. Broderick & Bascom Rope Co., St. Louis. Mal-Gra Cast, Co., Cambridge City, Ind.

WIRE ROPE FITTINGS. Broderick & Bascom Rope Cu., St. Louis. Leachen & Sons Rope Co., A., St. Louis.

WIRE ROPE SLINGS. Roebling's Sens Co., John A., Trenton,

WOOD PIPE. (For Water, etc.) Michigan Pipe Co., Bay City, Mich Standard Wood Pipe Co., Williamson Pa., Wyckoff & Son Co., A., Elmira, N. Y.

WOOD PRESERVATIVE. Barrett & Co., New York, N. Y.

WOODWORKING MACHINERY. American Saw Mill Mchry, Co., Hack-ettstown, N. J. Lane Mfg. Co., Montpeller, Vt. Parks Ball Bearing Machine Co., The, Cincinnati, Ohio.

YARN. (Tarred Stsal.) Plymouth Cordage Co., North Plymouth, Mass. Whitlock Cordage Co., New York, N T.

m

۵

Nov

Kir Kir Kir Kir Kir Kir Kir Kir Kir

Alphabetical Index of Advertisements

A	Bay City Dredge Works, 154	Chattanooga Road Machin-	Doullut & Williams Co., Inc. 70	Gregory Electric Co 140
	Bayley & Co., C. A. D	ery Co	Dowingtown Iron Works170 Dow & Smith	Greiner & Co., J. E. 70 Grey Steel Products Co. 148
A 270	Bell & Co., A. T	WOFKS 02	Dow & Smith	Grimen, Frank 144
138	Belmont Iron Works 36 Benjamin Equip. Co., Harry 148	Chesapeake Belting Co 17 Chesapeake Iron Works 24	Draper Corporation	Grinnell Co
A 274	Berger Mfg. Co 53	Chicago Bridge & Iron Wks.169	Draper, E. S. 70 Drouve Co., The G. 42 Druid Oak Belting Co. 17	Pulverizer Co.
Abendroth & Root Mfg. Co. *	Berger Mfg. Co	Chicago Watchman's Clock Works 54	Dufur, Baggott & Co 38	Gulf Refining Co 51 Gulf Refining Co 22
Acme Wagon Co166 Air-Tight Steel Tank Co170	Berry Bros	Works 54 Christie Co., L. R. 65 Church & Dwight Co. 50	Dufur & Co	Guli States Portland
labama Company 32		Church & Dwight Co 50 Chuse Engine & Mfg. Co 5	Co. *	Cement Co
Allegheny Steel Co	Bethlehem Steel Co	Cincinnati Fly Screen Co *	Co* DuPont de Nemours, E. I ‡	
llen Engineering Co152	Co., Inc	Cincinnati Frog & Switch	E	H
lien Engineering Co	R. C. * Biggs Engineering Co., W. E. 71	Co	Eagle Wagon Works	Sund
llison, Walter A	Binney & Smith Co 33	Clark, Jr., Elect. Co., Jas † Clark & Krebs	Earle Gear & Machine Co 00	Hadfield-Penfield Steel Co. 169 Haiss Mfg. Co., Geo185
luminum Wheel Co., of	Binswanger & Co	Classified Opportunities	East Iron & Machine Co147	Halsey-Stuart & Co
America 138 merican Appraisal Co. 72	Co 44	Cleveland Belting & Ma-	Eastman Gardner Hardwood	Hamburg Boiler Works 169 Hammond-Byrd Iron Co 61
merican Bridge Co	Birmingham Realty Co137 Birmingham Rail & Loco.	chinery Co	Co	Hammond Heating Co. 38
merican Cast Iron Pipe Co. 62 merican Cement Machine	Co. 149 Birmingham Slag Co. 164	Climax Mfg. Co	Howard N 70	Hanchett Bond Co
Co., Inc168	Birmingham Slag Co164	Corp163	ECU CIOCK CO OR	Harrington & King Perfor
merican Cement Tile Mfg.	Black & Co	Cohen & Sons, Louis148	Edge Maor Iron Co	ating Co
merican Creosote Works,	Black River Cypress Co I Blake Lumber Co Thos. W. 50	Coldwell-Wilcox Co	Eichleay Jr. Co., John 36 Eisert, Hermann 70	Dartiey Doller Works. 1
Inc	Blaw-Knox Co	Coleman-Shoemaker Co.Inc. 142	Electric Bond & Share Co130	Hauser-Stander Tank Co170 Hayward Co
Inc. 51	Blaw-Knox Co	Colonial Creesoting Co., Inc. 51 Columbia Wagon & Body	Electric Controller & Mfg.	Hayward Co
merican District Steam Co. ‡ merican Elevator & Mch.	Boiler Tube Co. of America 8	Co	Electric Hoist & Derrick Co 146	Heineken, W. P. 149 Heltzel Steel Form & Iron
Co., Inc 53	Ronney Supply Co	Columbian Iron Works Co 63 Columbus Conveyor Co164	Electric Welding Co	Co169
merican Enameled Brick and Tile Co 44	Borne, Scrymser Co	Columbus Forge & Iron Co. 54 Columbus McKinnon Chain	Electric Welding Co	Co
merican Fence Construc-	Box & Co., Inc., Alfred 21		The	Hercules Powder Co
tion Co	Works Co	Commonwealth Pipe & Sup-	Emerson Pump & Valve Co. 61	Hill & Griffith Co54
merican Lumber Co 51		Commonwealth Pipe & Supply Co	Empire Refineries, Inc ‡ Eppinger & Russell Co 51	Hills Co., George B. 71 Hill, Norman Alan 72
merican Machry. Equip. Co	Broderick & Baseom Rone	Concrete Steel Co 30	Equipment Corp. of. America 147 America 255 Eric City Iron Works * Eric Machine Shops 186	Hires-Turner Glass Co 40
merican Pattern Wks. Co. 54 merican Process Co 65	Co	Consolidated Prod. Co145 Construction Machinery Co.168	Erdle Perforating Co 55	Hitner's Sons Co., Henry A
merican Pulley Co		Continental Gin Co	Erie City Iron Works*	Hochstadter Laboratories 70
merican Rolling Mill Co 29 merican Saw Mill Machin-	Browning Co., The	Converse Bridge & Steel Co. 37	Erie Fump & Engine works	Hoisting Machinery Co148 Hollander Equip. Co148
ery Co	Buckeye Blower Co 55 Buckeye Machine Co 5	Cook's Sons, Inc., Adam 59	Erie Steam Shovel Co152 Evans & Co., Victor J130	Hood Brick Co., B. Mifflin. 44 Hoskins, T. D
mer. Sheet & Tin Plate Co.	Buckeye Traction Ditcher	Cooper & Co., Hugh L 70	Exch'g Sawmills Sales Co 49	Houston, Stanwood & Gam-
merican Spiral Pipe Wks. 62 merican Steel & Wire Co151	Bucyrus Co. 159	Copper & Brass Research	F	ble Co* Howard Refractories Co 14
merican Steel & Wire Co151 merican Telephone & Tele-	Buffalo Forge Co	Cordele Sash, Door & Lum-		Hubbell, Inc., Harvey 16
graph Co †	Buffalo Forge Co	ber Co	Fairbanks, Morse & Co ‡ Farris Bridge Co	
mer. Water Softener Co 13 merican Window Glass Co. 40	Burkett Sheet Metal Works *	Cornell-Young Co 71	Fawcus Machine Co	Drilling Co
nchor Post Iron Works 31 nderson Fdry. & Mch. Co. ‡	Burrows, E. A	Cortright Metal Roofing Co. 42 Covington Mach. Co., Inc 25	Federal Phosphorus Co ‡ Fernholz Brick Mchy. Co 66	
nniston Refractories Co 14	Byers Machine Co152	Crane Co	First Nat. Bank, Richmond,	Hyman-Michaels Co ‡
rcher & Co., E. T	Byllesby Eng. & Manage- ment Corp	Crawford & Slayton	Va* Fleet-McGinley Co	1
rmco Culvert & Flume	. C	Cresson-Morris Co	Florida Metal Products Co.169	1/13
Mfrs. Association	Cabot, Inc., Samuel ‡	Crompton & Knowles Loom	Flory Mfg. Co., S	Ideal Electric & Mfg. Co., The 16
rmstrong & Co., Archer147 rmstrong Mfg. Co	Caldwell & Co	Works 68 Crow, Waller, Inc. 72	Ford, Bacon & Davis, Inc 71 Forschner, Alfred J	Independent Pneumatic
rundel Corporation		Crucible Steel Casting Co 04		Tool Co
shworth, F. K 70	Caldwell & Son Co., H. W. 4 Cambria Clay Products Co. 14	Cummer & Son Co., F. D160 Curtis Bay Copper & Iron	Foundation Company	Industrial Equipment Co., The
sphalt Asso., The	Cambria Clay Products Co. 14 Campbell & Kinsey	Works	Foulhoux, J. A	Industrial Lumber Co 50
tlanta Bolt & Steel Prod-	Camp & Associates, E. V 70	tion Co., Alphons	Freeland, Roberts & Co	Ingalls Iron Works Co 37 Ingersoll-Rand Co
ucts Co	Cannelton Clay Products Co. 14	Cutler Mail Chute Co 47		International Clay Machin-
tlanta & West Point R. R.	Cannelton Sewer Pipe Co 14 Canton Art Metal Co 42	D	Freese & Co., E. M. 66 Frick Co. * Friend & Co. 165 Frink, Inc., I. P. 40	ery Co* International Filter Co*
tlantie, Gulf & Pacific Co 160	Canton Culvert & Silo Co169		Friend & Co165	International Steel & Iron
tlas Portland Cement Co	Carborundum Co	Dahlstrom Metallie Door	Froehling & Robertson	Co 37
udubon Wire Cloth Co.,	Cardwell Machine Co., The 68 Carey Co., Thos. F147	Co	Fuston, Walter J 72	J
Inc. 39 ustin Machinery Corp ‡	Carnegie Steel Co162		G	2017
astin Mfg. Co 65	Carolina Engineering Co 70 Carolina Portland Cement	Davis Foundry & Machine Works	Gallon Iron Works & Mig.	Jacksonville, Fla., City Adv.
ustin-Western Road Ma- chinery Co167	Co	Davis, J. F. 143	Co. 169 Gardner & Howe 70	Jaeger Mach. Co., The168
utomatic Electric Co †	Co	Davis & Son, G. M	General Electric Co	Jeffrey Mfg. Co
vram & Co., Inc., M. H 72 yres & Miller	Lime Co	Day & Zimmerman, Inc 71	General Engr. & Const. Co.	Jennings Automatic Dump Body Co., Inc
B	Central Coal & Coke Co 48	De Laval Steam Turbine Co. 56 Delaware Registration Trust	George Construction Co 72 George Construction Co 72 Georgia Car & Loco, Co 147	Johns-Manville, Inc.
about 6 William Co	Central Foundry Co., The 62 Central Gulf Lumber Co 48	Co. 131 Delta Equipment Co. 145	Georgia Car & Loco. Co147 Georgia-Carolina Brick Co. 145	Jointless Fire Brick Co 14
abcock & Wilcox Co	Central of Georgia Railway.171	Dempster Equip. Co149	Georgia Creosoting Co., Inc. 51	Jones & Laughlin Steel Co. J. T. Tractor Co., The
acon & Sons. A. S 50	Central of Georgia Railway.171 Central Pipe & Sup. Co145	Dempster Equip. Co	Georgia Crossoting Co., Inc. 51 Glamorgan Pipe & Fdry. Co. 62 Goldens Fdry. & Mch. Co 20 Goodrich Rubber Co., B. F.	
ailey-Lebby Co	Chain Belt Co	Diamond Rubber Co., Inc \$ Dietrich Bros	Goodrich Rubber Co., B. F.	K
all Engine Co152	Champion Engr. Co., The Chandlee & Chandlee	Dings Magnetic Separator	The 12 Good Roads Machinery Co. ‡	
all Engine Co	Charleston Dry Dock & Ma-	Co	Goodyear Tire & Rubber Co. 1	K. C. Elevator Mfg. Co 53
ank of Alabama, The131	chine Co	Dixie Mill Supply Co142 Dixie Portland Cement Co.164	Gordon Metal Co	Kehoe, Robert P
Parber Asphalt Co	Charlotte Elec. Repair Co 17 Chase Metal Works	Dixon Crucible Co., Jos 23	Goulds Mfg. Co	Kentucky Oxygen-Hydro-
annon Pipe Co	Chattanoora Armatura	Domestic Engine & Pump	Goulds Mfg. Co	Kentucky Rock Asphalt Co. 1
artholomew Hardwood	Works 18	Co	Great Southern Lumber Co. 1	
	W OFRE 10	Dominion Medal 1 100, Corp. 200		
atson, S. R.	Chattanooga Boiler & Tank	Donnelly & Co	Greene, John M. 147	Kilby From & Switch Co. 149
artholomew Hardwood	Works 16 Chattanooga Boiler & Tank Co. 170 Chattanooga Paint Co. 47	Donnelly & Co	Great Southern Lumber Co. ‡ Greene, John M	Keystone Pipe & Supply Co. Kilby Frog & Switch Co. 149 Kimball Bros. Co. 88

XUM

Iron 37

King, Philip T	Midland Barge Co	Petroleum Iron Works Co., 62 Pfannmueller Engineering	Seeger Machine Tool Co 144 Septik Tank Co	U Haine Danner Steel Co.
inney Mig. Co167	Miller & Co., G. L., Inc ;	Phoenix Iron Co	Seyfert's Sons, Inc., L. F138 Sharon Pressed Steel Co 30	Union Drawn Steel Co
rby-Bonner, Lumber Co. 47	Mill & Lupton Supply Co145 Minter Homes Co., The *	Photostat Corp	Sharpsville Boiler Works * Shearer, C. E *	United Iron Works, Inc
ein & Co., Nathan143	Mitchell-Tappen Co 36 Model Land Co*	Co	Shepard Electric Crane & Hoist Co	Universal Concrete Products
noxville Iron Co	Moeschl-Edwards Corruga- ting Co * Moffatt Mehy. Mfg. Co 58	Steel Co	Shreveport Blow Pipe & Sheet Iron Works, Ltd 52	Co
L	Monighan Machine Co160 Monro Warrior Coal &	Pittsburgh Plate Glass Co 40 Pittsburgh Steel Co 33	Silverman Co., W. H131 Singer Iron & Steel Co148	Co125
selede Steel Co	Moore Dry Kiln Co	Pittsburgh Testing Labora- tory	Sirrine & Co., J. E ‡ Slayton & Co., W. L	V
measter Iron Works	More-Jones Brass & Metal Co*	Platt Iron Works 61	Smith Co., Oscar T *	Vendor Slate Co
Printing Co130	Morgan Construction Co 34 Morgan Millwork Co 50	Plymouth Cordage Co ‡ Portable Machinery Co169	Smith Co., S. Morgan 60 Smith Co., The 71	Virginia Bridge & Iron Co. 37 Virginia Mehy. & Well Co.,
148 syne & Bowler Co	Morris Machine Works 56	Porter Co., H. K	Smith-Courtney Co 24 Smith Gas Engineering Co. 37	Inc. Virginia Steel Supply Co 35
ee, Wm. S	Morrison Co., Hackley139 Morse Agricultural Service. 72	Portsmouth Refractories Co. 1	Smythe Co., S. R 72	Vogt Machine Co., Inc., Henry
ehman, Chas. T	Morse Chain Co	Posey, James	Snead Architectural Iron Works	Vonnegut Hardware Co
eschen & Sons Rope Co., A. 76	Mount. W. D 71	Pottstown Steel Co142 Powell Co., Wm13	Sonneborn Sons, Inc., L 39 Southeastern Constr. Co 70	w
vis & Co., Henry148 de, Martin J70	M. O. & W. Engineering Corp	Power Mfg. Co	Southern Creosoting Co., Ltd	
idgerwood Mfg. Co	Mueller Metals Co	Pratt & Whitney Co 25	Southern Cypress Manufac-	Wagner Electric Corp 70
iquids Despatch Line	Mundy Hoisting Engine Co. J. S155	Prentiss & Co., Inc., Henry146 ProBert Sheet Metal Co 39	turers' Assn	Walsh & Weidner Boiler Co. 170
ombard Iron Works &	Murphy's Hotel 73	Progressive Mfg. Co 55 Proposal Advertisements	Southern Ice Machine Co 15 Southern Iron & Equip. Co. *	War Department140-141 Warner Petroleum Co22
Supply Co	Murray Iron Works Co 5 -Myers & Bro. Co., F. E 56	Provident Savings Bans &	Southern Metal Co169	Warren Bros. Co
ong Co., M. A	N	Trust Co130	Southern Mosaic Tile Co 44 Southern Pine Association 48	Waterbury Mfg. Co Wayne Tank & Pump Co
udlow-Saylor Wire Co 38		Pulsometer Steam Pump Co. 57	Southern Sheet & Tin Plate Co	Wayne Tank & Pump Co Weber Co., F
udlow Valve Mfg. Co 63 udowici-Celadon Co 43	Nashville Ind. Corporation ; National Blow Pipe & Mfg.	R	Southern States Portland	Weiss, B. M148 Weller, Francis R. 70
uchrs Co., The Daniel M. 70 akens Steel Co	Co., Ltd. 52 National Cast Iron Pipe Co. 63		Cement Co	WestbrookElevatorCo., W.J. 58
mkenbeimer Co 10	National Cement Co164 National Hoisting Engine	Racine Tool & Machine Co. 24	Southern Steel & Rolling Mill, Inc	Westbrook Elevator Mfg. Co., Inc
apten's Sons Co., David 39 aten, Daniel B 70	Co	Raymond Bros. Impact.	Southern Wood Preserving Co	Westinghouse Electric &
ster, Clark A 70	The ‡	Pulverizer Co	Southland Cotton Oil Co146	Mfg. Co
M	National Steel Fabric Co132 National Steel Rail Co148	Reading Chain & Block Corp24	Southside Fdry. & Mch. Wks.143 Spiker & Lose	Weston Electrical Instr.Co.
(cArdle & Walsh, Inc138	National Transit Pump & Machine Co 61	Reed & Duecker 17	Standard Cement Construc- tion Co	West Virginia Rail Co144 Wetherill & Co., Inc., Robt. 36
cCalla Co., Harold 35	National Tube Co. 6-7 New Jersey Fdry. & Mch.	Reeves Pulley Co	Standard Rail & Steel Co148	Wharton Jr. & Co., Inc., Wm
[eCalla & Co., J. B	Co 24	Regnas & Co., J. R	Standard Wood Pipe Co 62 Stanley Lumber Co., H. F. 48	Wheeling Steel Products Co. Whitcomb Co., Geo. D15
[eClintic-Marshall Co 36 [eCoy-Brandt Mehry, Co139	New Jersey Wire Cloth Co. 38 New York Continental Jew-	Reilly Mfg. Co., J. J 56	Starrett Co., L. S * Steel, John A., Jr 66	White Engineering Corpora-
eCrary Co., J. B 71	ell Filtration Co., The 13 New York Machinery Co139	Renneburg & Sons Co., Edw. 65 Republic Iron & Steel Co 61	Steel & Sons, J. C	tion, The J. G
eDevitt-Fleming Co 70 eEvoy & Co., J. H 76	Newman Clock Co ‡ Nicholson File Co	Republic Iron Works	Stewart & Co., Paul :	Wickes Machinery Co14 Wickwire Spencer Steel
eGinnis, & Co., N. C 70	Niles-Bement-Pond Co t	Richmond Fireproof Door	Stewart Iron Works Co 38 Stone & Webster, Inc 74	Corp Widmer Engineering Co
feGowan Co., John H 61 feGowin-Lyons Hardware	Nixon-Hasselle Co	Richmond Structural Steel	Strand & Co., N. A	Wier Lumber Co., R. W 4 Wiley & Co., Inc
& Supply Co139	Northern Fire Apparatus Co. ‡ Northwest Engineering Wks.152	Co* Rider-Ericsson Engine Co	Structural Slate Co 43	Wiley & Wilson
Iclanahan-Stone Mch. Co. 64	Nussbaum, & Co., V. M142	Ridgway & Son Co 58	Stumpf Una-Flow Engine Co., Inc	Millard F
feMillan, A	Nuveen & Co., John*	Ripley Fdry. & Mch. Co165 Roach & Stansell72	Sullivan Machinery Co151 Sun Shipbuilding Co34	Williams Brick Co., Inc., F. Graham
feWilliams Co., Inc 70	0	Roanoke Iron & Bridge Wks. 36 Roberts Filter Mfg. Co 13	Swedish Venetian Blind Co. 42	Williams, Henry O
John J	O'Briant & Yost	Robertson Co., H. H 43	Sydnor Pump & Well Co., Inc	Pulverizer Co
Ison Concrete Roller Co. ‡ Isin, Chas. T	Oconee Brick & Tile Co 46	Robertson, Furman & Murphy131		Willis, W. N
lal-Gra Casting Co150	Ohio Refractories Co., The 14 Ohio Steel Foundry Co., The 54	Robins & Co., A. K	T	Wilson & Co., E. H
Sanhattan Perf. Metal Co. 55	Oliver Iron & Steel Co * Oliver, W. J	Robinson & Co., Dwight P. 71	Table of Contents 75	Wilson Corp., The J. G Wilson Tank & Culvert Co.
fanistee Iron Works Co 61 farbleloid Co., The 39	Olson, O 70	Robinson & Orr	Table of Contents	Wise & Co., Harold G13 Wood Drill Works15
larine Bank & Trust Co131	Ophuls & Hill, Inc	Roebling's Sons Co., John A.150 Rosenstiel Co., The Lewis S. *	Taplin-Rice-Clerkin Co 4 Tarr, Louis A	Wood & Co., R. D. 6 Wood & Lane Co. 6
				wood, iron & Steel Co., Alan 3
farion Steam Shovel Co158	Osgood Co157	Rust Engineering Co	Tennessee Coal, Iron & R.R.	Wood, P. W.
Iarion Steam Shovel Co158 Iarkel, F. E	Osgood Co	Rust Engineering Co	Co	Wood's Sons Co., T. B 2 Woolford Wood Tank Mfg.
farion Steam Shovel Co158 farkel, F. E	Osgood Co	Rust Engineering Co	Co	Worthington Pump & Ma-
farion Steam Shovel Co	Osgood Co	Ryerson & Son, Jos. T 3	Co	Worthington Pump & Ma-
sarion Steam Shovel Co. .158 sarkel, F. E. 72 laryland Metal Building Co. .195 saryland Trust Co. .131 saryland Trust Co. .41 saryland Trust Co. .41 saryland Trust Co. .18 saryland Trust Co. .14 saryland Trust Co. .14 saryland Trust Co. .18 saryland Trust Co. .1	Osgood Co	\$ \$ Salem Fdy. & Mch. Wks 54 Samson Cordage Works 17	Co	Worthington Pump & Ma-
Steam Shovel Co	Osgood Co	S Salem Fdy. & Mch. Wks 54	Co	Worthington Pump & Ma-
fairion Steam Shovel Co. .158 fairle, F. E. 72 fairland Metal Building 195 for. .195 faryland Trust Co. .131 faster Builders Co. 41 layer, F. .148 sade & Co., Richard K. 70 fedart Mfg. Co., Fred. .38 dedart Co., The. .20 cose & Mees. .72	Osgood Co	\$\frac{\sqrt{S}}{\sqrt{S}}\$ \$S\$ Salem Fdy. & Mch. Wks. 54 Samson Cordage Works. 17 Sanders & Sweeny. 71 Sapulpa Refining Co. 22 Sauerman Bros. **	Co	Worthington Pump & Ma- chinery Corp
farion Steam Shovel Co 158 farkel, F. E	Osgood Co	\$\frac{\frac{1}{3}}{\frac{1}{3}}\$\$ Salem Fdy. & Mch. Wks	Co	Vorthington Pump & Ma- chinery Corp
iarion Steam Shovel Co 158 arkel, F. E 72 laryland Metal Building Co 195 aryland Trust Co 131 laster Builders Co 41 ayer, F 148 asade & Co., Richard K 70 ledart Mig. Co., Fred 38 defart Co., The 20 osne & Mees 72 ehan Co., Andrew I 142 ereantile Trust & Deposit Co 131	Osgood Co	Salem Fdy. & Mch. Wks	Co	\(\text{Vorkington Pump & Machinery Corp.} \) \(\text{Vorkington Mig. Co.} \) \(\text{Vorkoff & Son Co., A.} \) \(\text{Volande Coal & Coke Co.} \) \(\text{Vork Mig. Co.} \) \(\text{Voung & Seiden Co.} \) \(Vo
Steam Shovel Co 158	Osgood Co	Salem Fdy. & Mch. Wks	Co	Vorthington Pump & Ma- chinery Corp
Marion Steam Shovel Co. 158 Maryland Metal Building Co. 195 Maryland Trust Co. 131 Maryland Trust Co. 131 Maryland Trust Co. 41 Maryland Trust Co. 48 Maryland Trust Co. 48 Maryland Trust Co. 41 Maryland Trust Co. 38 Medate Co. Red. 38 Medate Co. Red. 38 Medate Co. Tred. 38 Medate Co. Tred. 38 Medate Co. Tred. 38 Maryland	Osgood Co	Salem Fdy. & Mch. Wks	Co	Vorhington Pump & Ma- chinery Corp. 5: Wright Mig. Co. 2: Wyckoff & Son Co., A. 6: Y Yolande Coal & Coke Co. 2: York Mig. Co. 1: Young & Selden Co. 1: Young & Tube
ferchants & Manufacturers	Osgood Co	Salem Fdy. & Mch. Wks	Co	Worthington Pump & Ma- chinery Corp

VIIM

No



Every unfenced factory pays a heavy price for the fence it does not have!

Good fence stops theft and waste

It pays the price for the daily thefts of materials and fuel which the unfenced plant invites and which good fence stops.

It pays the price on other scores, too. The plant yard is the logical and proper place for storing MANY materials. If you do not make use of this easily available plant area, you waste it-and pay for that waste.

If the plant yard is fenced and so made a safe place for storage, materials that would otherwise be thrown into the dump, are stock piled and saved.

Good fence saves from the first day

The cost of putting up the best of Factory Fences—Afco, is remarkably reasonable. And Afco Factory Fence lasts indefinitely when up. It saves real money from the first day.

Have a representative call

There is an Afco Fence District Representative near you. May we not have him call to talk GOOD FENCE—how you can best stop and guard against the heavy losses that lack of good fencing always brings, the low cost of the best fence, the practical, long-lived way that best fence is made.

FOR YOU WILL SAVE REAL'MONEY BY THINKING AND TALKING GOOD FENCE.

AMERICAN FENCE CONSTRUCTION CO. 130 West 34th Street, New York

This is the Afco Line Post

In it are em bodied six points of

construction found only in Afco Line Posts that mean satisfaction and service to the user such as he

cannot duplicate elsewhere. The Afco Line Post is one of the big features which combine to make Afco the per-

fected Factory Fence. The 1922 AFCO FACTORY FENCE CATALOG describes every Afco feature fully. Generously illustrated.

SEND FOR A COPY.

November 2, 1922.



for every industrial use:-

Maryland Metal Buildings are the cheapest in the long run for every requirement.

Built of No. 24 Gauge Lyonore Metal; they will last a lifetime. Specially formed interlocking sections give unusual strength and rigidity. Fire, weather and wind proof. They can be taken down and rebuilt whenever desired with a salvage of 95%.

Maryland Metal Buildings are quickly erected by unskilled labor. They offer every facility for good working conditions and maximum output and can be erected at a fraction of the cost of concrete, brick or wood structures.

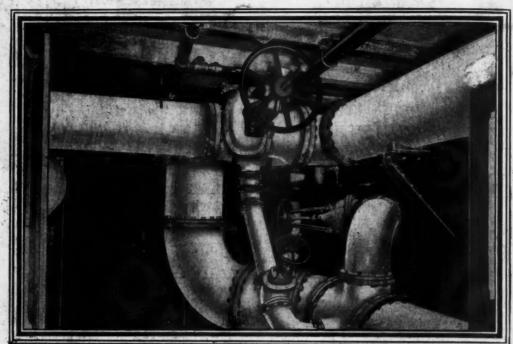
There is a Maryland Metal Building for every purpose. Let us figure on your requirements.

MARYLAND METAL COMPANY

RACE & McCOMAS STS.,

BALTIMORE, MD.





A TYPICAL PIPING INSTALLATION - CRANE EQUIPMENT IN THE PLANT OF TRUMBULL-CLIFFS FURNACE CO

BUILDING FOR PERMANENCE

Lower upkeep expense for piping systems depends on uniform quality in all equipment used. For a pipe line is an assembly of many units and the stability of the whole demands unfailing service from each unit—valve, fitting, piping, flange or specialty.

The high quality of all Crane valves,

fittings, pipe bends and specialties, guarded by rigid inspections and the most severe factory tests, insures dependable service from a pipe line constructed of Crane units. Crane branch houses maintain complete stocks of standard pipe line equipment at strategic shipping points.

CRANE

GENERAL OFFICES: CRANE BUILDING, 836 S. MICHIGAN AVE., CHICAGO

Branches and Sales Offices in One Hundred and Thirty-free Cities National Exhibit Rooms: Chicago, New York, Atlantic City Works: Chicago and Bridgeport



Crane 75 Low Pressure Globe Valve